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Volume 92 Number 4

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

GRIM 1932 again stalks across the industrial scene. This week and next, financial reports of the iron and steel industry for the fourth quarter, completing the picture for the year, will be issued. Of the integrated producers, not more than one is expected to turn in a profit for either the quarter or the year, although the full effect of retrenchment and the slight bulge in production in October and November probably have diluted the red for the remainder.

May Thaw Frozen Asset of Steel Corp.

First producer to report is Gulf States, showing a smaller loss than in 1931 (p. 8), while Acme leads finishing mills, with a slight profit. . . . Tuesday, Steel corporation directors ponder the preferred dividend. In the reserves of 15 of its railroad subsidiaries is $46,000,000, impounded by the recapture clause of the Transportation act (p. 7)—a sum, equal to dividends for two years, which will be freed when the clause is repealed retroactively, which is expected soon.

Production Rises, but Prices Fall

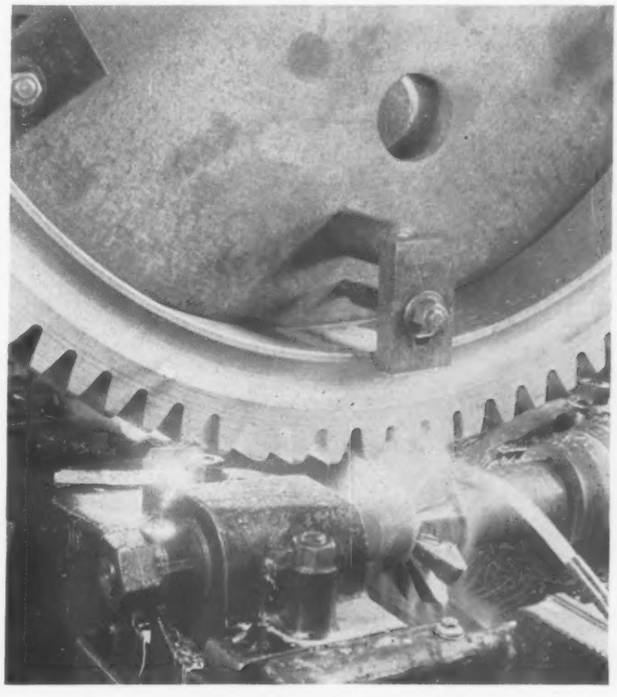
The financial record for the first quarter is now in the making. With a further increase to 18 per cent in the operating rate (p. 35), indications are that the volume of the fourth quarter will be exceeded. The price situation, however, threatens an offset. Wire products have been reduced $2 to $6 per ton (p 31), and sheet quotations are demoralized (p. 28). The general tenor of the markets, nevertheless, is mildly constructive (p. 27), and improvement is in the saddle.

Can "Look at All Three" Now

In the last analysis, the automobile industry is the arbiter of the steel markets this quarter. Detroit reports (p. 11) that Chevrolet and Plymouth, leading producers, are slowing a little but Ford, scheduling 1000 daily of the new large eight, promises to take up the slack. The smartest, fastest Ford in history, on a 112-inch wheelbase, also making it the largest, is due within a week. . . . Appraising the new 1933 automobile models, the artistry of designers and diemakers is being more fully appreciated (p. 11). It is the greatest year yet for steel in the automotive field. . . . Larger sheet sales in December by independent mills are ascribed (p. 9) to automotive demand.

The Merit of Carbides at the Cost of Steel

High hopes are invoked by a new metal cutting alloy, having characteristics about midway between high-speed steel and cemented carbides and costing somewhat more than the steel but only a fraction of the carbides (p.



Courtesy Westinghouse Electric & Mfg. Co.

Rotary cutter roughing out teeth on ring gear, 52 inches in pitch diameter, with 91 teeth, for Pennsylvania passenger locomotive, for what is claimed to be the most accurate gearing ever for railway service. Tolerances are ±0.001-inch

19). This alloy, a practically carbon-free electric furnace product of cobalt, tungsten and iron, can be forged or rolled, machined and heat treated to great hardness and toughness. Extensive tests indicate that the alloy will cut both cast iron and steel with facility . . . . A manufacturer of rotary pumps submits (p. 23) the analysis of a gray iron which offers good resistance to many types of abrasion.

Welding and Riveting Provide Thriller

Visitors to the Chicago world fair, opening in June, will be thrilled by a unique sky ride on rocket cars suspended from cables strung 1850 feet between two 628-foot towers, for which a unique combination of welding and riveting is responsible (p. 17). Only specially designed automatic welding machines could accommodate the heavy structural sections in the towers. . . . Welding with nickel rod preserves the continuity of the interior, nickel surface of a 1000-gallon water heater recently placed in service in a Canadian laundry (p. 20). It is formed from one large nickel-clad steel plate, 149¾ x 116 inches, 5/16-inch thick. . . . Tendency of chrome-nickel alloys to buckle or lose shape when oxyacetylene welded can be controlled (p. 23) by preheating and the use of jigs and chill plates.

Governmental Ineptitude a Serious Handicap

At home and abroad business languishes because of political uncertainties, which have the effect of padlocking enormous sums awaiting safe employment. . . . While Europe apparently is on the threshold of recovery, a survey reveals (p. 10) that political tranquility and economic co-operation are precedent to it. . . . In the United States (p. 14) the inability of the senate to organize itself, the lack of a tax program to assist in balancing the budget, the delays incident to a change in administration are holding recovery in a vise. . . . Were the Kent plan for reviving business adopted and found workable (p. 8), steel production would be tripled.

Self-Help Is Steel Founders' Formula

Indulging in considerable introspection at its convention at Detroit, the Steel Founders' Society of America concludes (p. 7) that its own members are supplying the competition which is beating down the price of castings, and is turning to greater co-operation as a remedy for depression. . . . Including steel castings, manufacture of tractor-trailers for material handling has accounted for 20,000 tons of steel (p. 24) in the past decade. . . . Open-hearth furnace roofs which are too flat, in addition to being unstable, produce excessive stresses on the skewback and buckstay system, thereby being subject to early failure. A remedy (p. 21) is proper design.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

Retirement Pensions and Unemployment

To the Editor:

State legislatures shortly will be giving consideration to various plans for relieving unemployment, the principal plan so far being unemployment insurance.

This plan if set up could not be effective for offering relief during this present depression, it would affect only a limited number of workers, and it would in effect create an additional burden on the employers of one state, which would result in placing them at a disadvantage when competing in the sale of their finished product with manufacturers of other states not having this additional burden to carry. These are some of the principal objections against state unemployment insurance.

On the other hand, it must be admitted that something must be done to offer protection and relief to the many persons out of employment during times such as we are going through. It has been proposed to limit the hours of labor to four or six hours per day and limit the number of working days per week to four or five. This would be one way to absorb the surplus labor. However, there is one serious objection to this plan.

While the unemployed in our country number about 12,000,000 persons, which is a deplorable condition, at the same time there is one feature in connection with this army of unemployed that is even more deplorable. That is the unemployment of practically all of the young men and young women who have been graduated from schools and colleges, and have come onto the labor market since 1929. The spirit of many of these young people is broken and they will never acquire the spirit of industry. This condition is most deplorable and serious.

None of the plans suggested so far for relieving the unemployed would affect the problem of these young persons. Part-time unemployment for them is almost as dangerous as total unemployment.

The only practical way to solve this unemployment problem in all of its phases is through a system of old age or retirement pensions—not a state operated but a nationally operated system. The immediate reaction to this suggestion will be the objection to adding another federal department and then increasing taxes. Nevertheless, it is the only practical way to solve this problem. Making the retirement age flexible—lowering the retirement age limit during times when labor is less in demand and raising it when there is greater demand for labor—would automatically provide a safety factor. this would take out of employment the older persons during times when there is not sufficient work for everyone and at the same time provide for their support, thereby automatically making room for the younger persons as they graduate into the labor market, and it would also automatically, to some extent at least, control production, thereby reducing over-production. It would result to the benefit of every person.

The principle of retirement on pension is sound. It is in effect among our federal and state government employes and those of some of the larger corporations. It promotes patriotism and loyalty.

The adoption of this plan would be the greatest forward step since the emanicipation of the slaves.

LUCIAN E. KINN
President and General Manager
Fostoria, O. The Seneca Wire & Mfg. Co.

See Internal Adjustments as Way Out for Steel Founders

WHEN the Steel Founders' Society of America met in annual convention at Detroit, Jan. 19, the chastening effects of unprofitable operations in 1932 and the present low operating rates of members, ranging from 10 to 25 per cent, were evident. There was a greater willingness to co-operate, to recognize that selling below cost is business suicide, a conviction that 1933 certainly will be no worse than 1932 and may be much improved.

Arthur Simonson, Falk Corp., Milwaukee, in his annual address as president, sounded the keynote in a call for a return to fundamentals. In spite of "crats, cults and ologies," which clutter the immediate foreground, the long view of America is unobstructed, he maintained. Instead of defeating business the depression is generating a spirit that will win, he declared.

Look to Consumers' Needs

"The concentrated attention that has been given to production problems and to salary and expense reductions and different forms of control in the average steel foundry must now give way to the development of a greater insight into the trends of steel casting consumer requirements and the development of new uses for cast steel," declared Granville P. Rogers, managing director of the society.

Destructive as many selling practices are, little assistance can be expected from antitrust laws, according to Mr. Rogers. Deflationary buying must cease, and the time has arrived "to provide and make all necessary adjustments, collectively plan and apply new ideas and methods to replace the old, now obsolete, and that should be abandoned."

"Don't sell steel castings," Mr. Rogers urged. "Find the place they can be used and sell the service they can render under the conditions to which the machinery or the product is to be placed. Don't aim to get by—get more buyers. This is a constructive program for 1933."

Frederick A. Melmoth, vice president, Detroit Steel Casting Co., Detroit, stressed the necessity for a united stand. The steel foundry industry, he maintained, makes its own competition, it is not subjected to intense low-price competition, deliveries rarely can wait the time required for any competition to be effective from abroad, the quality of American steel foundries is unsurpassed, hence the industry has corrections within its grasp, he insisted.

Clarence Tolan Jr., Dodge steel Co., Philadelphia, pointed to the fact that 80 per cent of the population of America depends upon business or industry for its livelihood. Consequently, the constant demand for lower and lower prices reacts directly upon the buying power, the welfare and the existence of a large proportion of the people.

A buying policy that constantly seeks to drive down prices cannot but react sooner or later upon buyer as well as seller in every transaction. Selfish fear which dictates a buying policy that permits purchases at prices known to be below costs, is in the last analysis, self destructive. The recognition of this fact is the first step in recovery for all industry, he declared.

Buyer Often at Fault

The discussion which followed demonstrated that the seller is not alone in intensifying the competitive pressure. The buyer often is the aggressor through his own purchasing department, while in his sales relationships he decries practices that he condones in his own establishment.

Malcom W. Bingay, editorial director, *Detroit Free Press*, pointed to the present period as the end of an era.

T. H. Harvey Is President

T. H. HARVEY, of the Ohio Steel Foundry Co., Lima, O., was elected president of the Steel Founders' Society of America, at the annual meeting in Detroit, Jan. 19. Those chosen as vice presidents include G. R. Casey, Treadwell Enginering Co., Easton, Pa.; E. L. Brooks, Sawbrook Steel Casting Co., Cincinnati; F. A. Lorenz Jr., American Steel Foundries, Chicago; H. E. Muchnic, Locomotive Finished Material Co., Atchison, Kans.; R. E. Noak, Monarch Foundry & Engineering Co. Ltd., Stockton, Calif.

The following directors were chosen: Keith Williams, Pratt & Letchworth, Buffalo; W. E. Trump, Machined Steel Casting Co., Alliance, O.; Arthur Simonson, Falk Corp., Milwaukee; E. S. Dilley, Standard Brake Shoe & Foundry Co., Pine Bluff, Ark.

Recapture Repeal To Aid U. S. Steel

REPEAL of the recapture clause of the transportation act of 1920, whereby net earnings of railroads in excess of 6 per cent are subject to distribution among less prosperous railroads, is regarded in Washington as a certainty.

In its recent annual report the interstate commerce commission again recommended repeal, and it is believed that congressional action relieving the railroads of this liability

NATURE IN THE RAW IS SELDOM VISIBLE, so steel aids in opening it up. This beautiful scene on the Naches Pass road, on Highway 410, 12 miles east of Aberdeen, is being made more accessible by a road-widening program. Edlefsen-Weygandt, Portland, Oreg., is using a Caterpillar tractor and a LaPlant-Choate bulldozer in stripping down a bank

will be taken shortly, possibly at the special session likely to be called for early spring or at the next regular session.

It is generally believed that repeal will be retroactive and in this event the United States Steel Corp. stands to have a large sum released for other purposes. Of the 23 railroad subsidiaries of the Steel corporation, 15 have an estimated recapture liability for 1920 to 1930, inclusive, of $52,258,640. Statistics for 1931 and 1932 are not available but it is not believed that earnings in either year reached the liability point.

Of the $12,000,000 which American railroads have paid into the recapture fund of the commission, the Steel corporation accounted for $6,305,000, leaving approximately $46,000,000 impounded by it at this time. To afford a comparison of the potential benefit to the Corporation, its quarterly requirement for the preferred dividend is $6,304,919. In other words, the release of the impounded earnings would pay the preferred dividend for two years.

The Corporation railroads and their recapture liability for 1920 to 1930 inclusive are: Bessemer & Lake Erie, $11,370,624; Birmingham Southern, $236,077; Carbon County, $21,995; Donora Southern, $14,773; Duluth & Iron Range, $1,670,203; Duluth, Missabe & Northern, $25,462,836; Elgin, Joliet & Eastern, $9,374,365, Etna & Montrose, $18,208; Hannibal Connecting, $29,455; Johnstown & Stony Creek, $24,868; Lake Terminal, $58,589; Newburgh & South Shore, $61,132; Northampton & Bath, $78,660; Union, $3,814,226 and Youngstown & Northern, $22,630.

Conley for Fair Treatment, End of Bid Peddling

Clyde C. Conley, president of the Mt. Vernon Bridge Co., Mt. Vernon, O., and of the American Institute of Steel Construction, New York, made a plea for more equitable treatment of subcontractors and elimination of bid peddling, before the convention of the Associated General Contractors at Detroit, Jan. 18.

He pointed to the volume of steel construction in 1932, at 850,000 tons, as representing about three months work for the fabricating industry if running at capacity.

Mr. Conley, seeking the co-operation of contractors in eliminating the evil of bid peddling, pointing to the Huddleston plan in Boston, whereby bids are submitted in two parts, one covering the general contract and the other the separate subcontracts. Where contracts for steel construction are let direct by the owner the situation has improved, according to Mr. Conley.

How Kent Plan Would Help Steel

OF THE various programs proposed to move business off dead-center, none has received wider approval than the Kent plan sponsored by Fred I. Kent, New York banker. At a recent congressional hearing Charles A. Miller, president of the Reconstruction Finance Corp., endorsed the program personally.

Under the Kent plan an effort would be made to restore business conditions of 1927. Briefly, banks would be empowered to loan money to enable manufacturers to resume their 1927 gait. It is assumed that concerted action by all industry on this basis would stimulate demand for all the manufactures resulting, but any deficit would be guaranteed by the Reconstruction Finance Corp. The latter would benefit from 50 per cent of any profit.

So far as the iron and steel industry is concerned, restoration of the 1927 level would put the production of steel ingots up to an annual total of 43,397,473 tons, or a daily rate of 139,543 tons, compared with an output in 1932 of 13,095,727 tons, or 41,973 tons daily. The 1927 level of coke pig iron production was 36,289,112 tons, or a daily rate of 99,422 tons, contrasted with 8,674,067 tons, or a daily average of 23,699 tons, in 1932.

In 1927, iron and steel prices, as measured by the composite of STEEL, averaged $36.37, or 24 per cent above the average of $29.46 for 1932.

The Business Week In Washington

WAYS and means committee of the house of representatives announced Jan. 20 that hearings will begin Jan. 26 on the Hill depreciated currency bill, which would mitigate through the tariff any advantage accruing to nations whose exchange rates are off. Steel interests have approved the measure.

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Reconstruction Finance Corp. has agreed to finance the following projects:

Pensacola, Fla., $50,000 for improvements to city water system, requiring 475 tons of cast iron pipe and a 500,000-gallon elevated steel tank.

Riverton, Utah, $20,000 for Riverton Pipe Line Co. for repairing reservoir and replacing pipe, requiring 200 tons of cast iron pipe.

Quincy, Fla., $16,000 for municipal improvements requiring 130 tons of structural steel.

Fabens, Tex., $15,000 for Fabens Water Co. for improving water system, needing elevated tank and several miles of 1, 2 and 6-inch cast iron and galvanized steel pipe.

Balmorhea, Tex., $40,000 for Reeves County Water Improvement District No. 1, requiring reinforcing steel for repairing an irrigation system.

San Juan, Puerto Rico, $1,300,000 for improving municipal water system, involving purchase of large quantity of cast iron pipe.

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Senator Edward P. Costigan, Democrat, of Colorado, has introduced a resolution calling upon the tariff commission to supply information in connection with bargaining tariffs. During the campaign, Governor Roosevelt advocated a bargaining tariff policy.

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New York and Washington experts on various phases of the steel dumping cases before the customs bureau of the treasury department met at Washington, Jan. 19, for a conference to canvass the possibility of expediting all or part of the cases.

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By a vote of 150 to 18 the house of representatives passed the "Buy American" bill providing for the purchase of domestic materials and supplies for public use and for the use of domestic materials in public buildings and works when such are available. Every contract for construction or repair of any public building is to contain the provision that contractors and subcontractors, so far as practicable, conform to this requirement. The only loophole is unreasonable cost of domestic materials or inconsistency with the public interest.

The senate commerce committee has approved the bill.

Acme Made Profit in 1932

Acme Steel Co., Chicago, in its financial report for 1932 shows net of $21,340, equal to about 6 cents a share on outstanding capital stock, compared with net of $372,027, equal to $1.08 a share in 1931. The ratio of current assets to current liabilities was 7 to 1 at the end of last year, compared with 5 to 1 the preceding year. Current assets of $2,577,135 included $633,161 cash, while current liabilities were $333,514.

Gulf States Loses Less

Gulf States Steel Co., Birmingham, Ala., reports net loss for the year ended Dec. 31, as compiled from quarterly reports, as $518,313, compared with net loss of $976,230 in 1931. In the fourth quarter the net loss was $46,235, against $193,009 in the fourth quarter of 1931.

Fight Surcharge Extension as Plea for Lower Rates Is In

WHILE railroads have under consideration the proposal that freight rates on finished steel products from producing points between Johnstown, Pa., on the east, the Cincinnati district on the south and St. Louis and Chicago on the west to Detroit, Cleveland and Toledo, O., be reduced, opposition in the industry is being voiced in Washington against continuation of the surcharges on freight rates which expire March 31.

These surcharges, which amount to 2 cents a net ton on finished steel products, 6 cents a ton on coal, coke and ore and 12 cents a ton on pig iron and scrap an average of 15 per cent became effective Jan. 4, 1932, after the interstate commerce commission refused the railroads a horizontal increase in rates. Their extension after March 31 is up to the commission.

Hearing at Chicago, Feb. 2

The commission has ordered a hearing Feb. 2 at Chicago on the petition of the railroads for continuation of the surcharge. Proceedings also were assigned for an oral hearing at Washington Feb. 17 and shippers have been allowed until Jan. 31 to file verified statements in lieu of oral testimony relative to the surcharge matter.

Among the steel companies opposing extension of the surcharges are the Andrews Steel Co. and Newport Rolling Mill Co., both of Newport, Ky. In its brief the Andrews company states:

"The solution of the railroads' present problems can not be found in exacting further toll from prostrate industry. Freight tonnage to transport is the need of the carriers and increased traffic can not be expected from increased rates when almost every industry is of necessity compelled to seek ways and means of lowering transportation costs. It is submitted that the carriers have it in their own power to greatly alleviate their present trouble and until all reasonable steps have been taken to eliminate the present competitive and other preventable waste, industry should not longer be called upon to bear the burden of increased transportation charges."

An exception is the Institute of Scrap Iron and Steel, New York, whose directors, following a referendum, have voted not to oppose the petition of the railroads for a continuation of the surcharges. The institute, however, still maintains that scrap carries a heavier freight burden than its intrinsic value warrants and reserves the right to attack inequitable rates.

At the hearing at Pittsburgh, Jan. 13, on the proposed reductions to automotive steel consuming centers, the keynote was the contention that the steel industry would be compelled to move closer to its automotive outlets. The new base requested is an 18½ cent rate from Pittsburgh to Detroit and 15 cents from Youngstown, O., to Detroit, with commensurate adjustments in rates from other districts.

Freight Exceeds Differential

It was pointed out that delivered prices in Detroit on steel for some time have not been much over $2 to $3 a ton above the quoted Pittsburgh base, whereas the freight rate amounts to $5.70 per ton.

Pittsburgh district producers are united in the plea for a reduction, while other districts are agreeable, provided present differentials are maintained. The Great Lakes division of National Steel Corp., at Ecorse, Mich., is on record as favoring the reduction if comparable adjustment is made in rates from Detroit to Youngstown and Pittsburgh.

It was brought out at the hearing that steel is being shipped by truck to Detroit from points as distant as St. Louis. The two mills at Newport, Ky., declared they would be forced to initiate their own trucking service to Detroit, with a return load of scrap, unless rates are lowered.

Sheet Sales Improved in December; Output Down

Daily average sheet sales increased to 2482 net tons in December, from 2209 tons in the preceding month, according to the current report from the National Association of Flat Rolled Steel Manufacturers, Cleveland. Production, however dropped from a daily average of 3023 tons in November to 2499 tons in December; and shipments were down from 2566 tons to 2174 tons. December sales totaled 76,962 tons; production, 77,489 tons; and shipments 67,412 tons.

Unfilled tonnage as of Jan. 1 was 84,390 tons, compared with 77,339 tons Dec. 1. Total sheet capacity in the country for December was approximately 550,000 tons, and capacity on which the association's figures are based was 342,000 tons.

Alabama Pipe Co. Resumes

The Alabama Pipe Co., Talladega, Ala., has resumed operations on a 3-day schedule after being shut down for almost a month. It employs 140 men.

To pick up a 40-passenger bus from the street in front of a 4-story building, swing it over the roof and drop it in the backyard would be a mere setting-up exercise for this giant electric shovel, built for the Clemons Coal Co., Pittsburg, Kans., by the Marion Steam Shovel Co., Marion, O., and electrified with the General Electric Co.'s Ward Leonard type of shovel equipment. Approximately 3000 horsepower in electric machinery is involved, the largest motor being 800 horsepower. The shovel weighs 1100 tons, the dipper has a capacity of 18 cubic yards or 27 tons, height is 80 feet and the cycle of operation is 45 seconds

Europe's Steel Trade Hopeful; Economic Tranquility Needed

VINCENT DELPORT, European manager of STEEL, again presents his quarterly review of the iron and steel situation in Europe. He finds many favorable elements but stresses the need for nourishment from international co-operation.

AS WE enter 1933 it is not yet possible to say that Europe has definitely emerged from the state of depression that has disorganized industry and trade since 1930. Any signs of what was known as prosperity are still too distant to be perceived. It can be stated, however, that the feeling of importance which all but permeated the atmosphere at this time last year has generally disappeared, giving way to a sense of expectancy and hope.

A year ago we wrote: "The even flow of industry and commerce cannot be re-established until reparations and debts, those remnants of the world war, have been settled. Stabilization of the leading world currencies and an adjustment of production to demand are also necessary before anything resembling normal conditions can be resumed. These requirements are more than mere correctives for the present state of stagnation; they are essential to any possible resumption of a semblance of prosperity throughout the world."

Events during 1932 seem to have fully justified these remarks. A first step in the right direction was made last summer at Lausanne, when reparations were practically wiped out by common agreement. Before the summer had ended, there were definite signs of a revival of confidence, accompanied by a slight but gradual expansion of business in several directions.

Prompt Agreement Would Help

The unfortunate set of circumstances which surrounded the war debt question in December resulted in a check to this improvement. It is felt, however, that if a prompt agreement on the subject can be arrived at, a definite advance would be made toward resumption of trade the world over; particularly if other economic obstacles could be removed concurrently. Only the more pessimistic assume that wisdom will not prevail some time in 1933 to bring about a result that is desired by all.

One country in Europe definitely improved its position by the end of 1932, and now enjoys a more promising outlook than 12 months ago: Great Britain. The result is due primarily to the action taken by the British people to put their house in order. In the second place, it is due to the deliberate steps taken at Ottawa to unite the empire more closely, and thirdly, to the tariff.

What the ultimate consequences of these actions will be in years to come it is yet too early to tell, but the immediate results so far have been helpful. It is also worthy of note that Great Britain does not appear to have suffered unduly from departing from the gold standard, but it would be better for world trade as a whole if exchanges were based on a common standard.

Britain, Russia Exceed 1931

Great Britain is the only country in Europe, excepting Russia, whose steel output was larger in 1932 than in 1931. In the first 11 months of 1932 the tonnage of steel produced was 4,826,400, against 4,753,200 in the corresponding period of 1931, an increase of 1.5 per cent.

Of greater interest still is a comparison of foreign trade returns. In the period January-November, 1932, exports of iron and steel were 1,724,679 tons, compared with 1,805,361 tons in the corresponding period of 1931. Imports, on the other hand, decreased from 2,535,037 tons to 1,519,495 tons.

Thus, the decrease in exports was only 4.5 per cent, whereas the decrease in imports was as much as 40 per cent. The reduction of imports was particularly noticeable in November and December, when the tariff gave its full effects. The weakness of the sterling exchange added its influence to import restrictions.

The volume of British iron and steel trade, both for home and export, is, of course, much below normal, and prices are barely sufficient to yield any profit, but the tendency as the year begins is favorable. The industry itself is undergoing important operations of reorganization, the beneficial effects of which should make themselves felt in time.

On the Continent the position still is very uncertain. Difficulties in the smaller states of Central Europe continue acute. Germany is only beginning to emerge from the widespread depression and any definite improvement is retarded by political confusion. A gradual increase in monthly steel output set in about August, and the year ended better than it began.

France has suffered like all other countries in her export business, but, in addition, domestic conditions have worsened rather than improved. There is a considerable deficit in the budget, and it seems difficult to balance without resorting to additional taxation, a state loan, economies or inflation.

Belgium and Luxemburg were far from prosperous in 1932, and the outlook for this year depends largely upon the trend of international trade. There was a definite improvement from September to the end of November, and steel prices hardened considerably, while the works became booked up to January, 1933. Early in December, the improvement was checked, and prices lost most of the ground that had been regained. As the year opens orders again are sorely needed.

The European Steel Entente was completely ineffective throughout 1932, but in the last days of December it was reported that the Belgian producers were very nearly agreed among themselves. As the lack of unity among the Belgians was one of the principal stumbling blocks in the way of the reorganization of the Entente, it is now hopeful that definite progress will be made soon.

This rapid review indicates that there are certain favorable elements in the situation as it presents itself at the beginning of the year. To take full advantage of these factors, prejudices must be broken down and peoples must co-operate in a spirit of goodwill and understanding.

Obituaries

CHARLES VICKERS, nonferrous editor of *The Foundry*, consulting metallurgist and widely known throughout the foundry industry for his contributions to the field of nonferrous foundry practice, died at Buffalo, Jan. 19, following an illness of several months.

Mr. Vickers was born in the village of Old Whittington, England, in 1865. Following a period in the local schools he was employed by several metalworking plants, including the foundries of Clayton & Shuttleworth and Ruston Proctor & Co. Later he came to the United States, where as a practical foundryman he filled many positions in the industry.

Mr. Vickers resigned as superintendent of the brass foundry of the Milwaukee Electric Railway & Light Co., Milwaukee, in 1910, following

(*Please turn to Page* 34)

MIRRORS OF MOTORDOM

DETROIT

FURTHER releases of material and parts by Ford the past few days indicate that the new eight which is to replace the present V eight is ready. A schedule calling for the production of 1000 units daily, five days a week, as rapidly as possible has been adopted, and assembly has been started.

While some handmade models may be displayed at the Detroit automobile show this week, it is believed that the new line will be formally introduced at the national show which opens in Chicago next Saturday, Jan. 28.

Bodies will be the most extreme that Ford has ever put on a chassis. They are completely streamlined, with a bead running from the radiator to the rear, somewhat similar to the one on the new Pierce-Arrow twelve.

The radiator is similar to that of the new Lincoln. Fenders enclose the running gear. Headlamps have a deeper draw than on any previous Ford model. Space under the instrument board is recessed to afford about 5 inches additional foot room.

Ford Speed Is 105 Miles

The wheelbase is 112 inches, and the engine has been stepped up to 85 horsepower. An aluminum head is optional, and equipped with one of these heads a test car is said to have made as high as 105 miles per hour. Detroit expects the new line to rank with the finest, in point of appearance, in its field.

This line, of course, is the larger one. So far as can be ascertained, development work on the small series, also expected to be an eight, and to be extremely low priced, is about concluded, and production also will get under way shortly.

Because the new models are a refinement and an enlargement of the present V eight the pains of transition are expected to be less than from Model T to Model A and from Model A to the V eight, hence the attainment of a daily rate of 1000 units may not be especially difficult.

If the new Ford schedule is carried out, it seems certain that January production of motor vehicles will exceed the estimated 102,000 for December. Chevrolet is proceeding on a basis of about 60,000 units this month, comparable with December. Plymouth is assembling 12,000 to 14,000 this month.

Chevrolet, which is actually behind in deliveries at this time, gives indications of easing off to about 40,000 in February. Plymouth will continue its 12,000-14,000 rate next month. Ford should turn in at least 40,000 to 50,000, assuming that assemblies the remainder of January will supply only a fraction of the requirement for stocking dealers.

Considering all materials, releases thus far in January for shipment in February are not quite up to December volume. It would not be unseasonal if, after runs for the shows and for dealer stocks are completed, there were a slight letdown. Normally, March and April are substantial production months, hence the gap may not be broad.

The new Ford may compel a revised appraisal of the low-price field. Reports of the New York and of local automobile shows, so far as actual sales are concerned, are nebulous. The opinion in Detroit is that sales have been good, considering the times, but not sufficiently so to build up hopes of a really vigorous campaign.

It is relaying an impression gained in Detroit that Chevrolet and Pontiac have won the widest acceptance in what might be termed the volume field. There is also the impression that cars in what might be termed the Buick class are handicapped by the great value and style offered by cars retailing at $800 to $1000. But any genuine improvement in general business might supply a relatively greater lift to the medium than to the low price field.

Largest material releases the past few days have been issued by Chevrolet, for February production. These releases indicate an unbalanced inventory, and correct this condition. Ford orders are chiefly for strip and sheets.

The operation of five of the six open-hearth steel furnaces at the Detroit steelworks is made possible largely by Ford business. The 41 per cent rate at which steeel mills at Cleveland operated last week is ascribed in large measure to Chrysler business taken by the Otis Steel Co.

Steel Is Almost Plastic

Never has the automotive industry worked so freely and enthusiastically in steel. Even the least artistic eye cannot look head-on at the new models and fail to appreciate that steel is almost plastic in the hands of designers, and those models having fender valances disclose a further phase of aesthetic treatment.

In some instances, streamlining may appear to have made too rapid strides for one year, but it must be conceded that diemakers not only have responded to a new and difficult mode but they also have been mindful of a desirable economical working of steel.

Fender valances, incidentally, appear to have divided the automotive industry into two distinct camps. A majority of manufacturers have adopted them, in greater or lesser degree. Noteworthy among dissenters are Chrysler, Nash, Hupp, Auburn, Reo, Franklin and Marmon, although many of these have molded their front fenders to hug the wheel and

(Please turn to Page 41)

Industrial Men in the Day's News

J. E. Lewis, President, American Refractories Institute

FORTY-SIX years has he been with the Harbison-Walker Refractories Co., of which he now is president.

SINCE boyhood he has been identified with the industry; he is familiar with both operating and sales problems.

UNDER his guidance the institute will expand its research and standardization work, an aid to producer and consumer alike.

J. E. LEWIS, president of the Harbison-Walker Refractories Co., Pittsburgh, was unanimously elected president of the American Refractories institute, Pittsburgh, on Dec. 12, at the most fully attended meeting in its history.

Although still in his fifties, Mr. Lewis is regarded as the dean of the refractory industry. Last December he completed the forty-sixth year of his association with the Harbison-Walker Refractories Co., as he has been identified with it since his early boyhood.

A native of Clearfield, Pa., the heart of the Pennsylvania refractory industry, his youth was spent at the familiar tasks of the old time brick-yarder and his personal experience has covered the span connecting that day with the modern industrial unit which he heads at present. Mr. Lewis rose to the presidency through both operating and sales capacities.

Under Mr. Lewis' forthcoming presidency of the American Refractories institute, it is understood the directors of the institute contemplate increasing the scope of the research work carried on by that body and will continue the standardization program that has already made important savings to both refractory consumers and producers.

By a united program of research through the Mellon institute, Pittsburgh, considerable data become available to the refractory brick manufacturer with only limited capacity.

HARRY T. Gilbert, who resigned in June, 1932, as general manager of the Midland Steel Products Co., Cleveland, has been appointed manager of sales of the Chicago district for the Illinois Steel Co., succeeding David T. Buffington who has been made a special agent in the general sales department. Mr. Gilbert, who was 60 on Jan. 3, was associated with the New Orleans representatives of the Illinois company from 1894 to 1904. He was with Foust & Gilbert, iron coke and steel brokers, Birmingham, Ala., from 1904 to 1905, leaving there to become sales manager of the Sharon Steel Hoop Co. In April, 1928, Mr. Gilbert was made vice president in charge of sales of the Republic Iron & Steel Co., retaining this post in the reorganized Republic Steel Corp. until September, 1930. He went with the Midland company Oct. 15, 1931.

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J. H. Hillman Jr., a director of Spang-Chalfant & Co., Pittsburgh, Sharon Steel Hoop Co., Sharon, Pa., and United Engineering & Foundry Co., Pittsburgh, among other concerns, has retired as chairman of the board of directors of the Peoples-Pittsburgh Trust Co., Pittsburgh, to devote his entire time to the field of industrial reorganization and refinancing.

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E. R. Crawford, president, McKeesport Tin Plate Co., McKeesport, Pa., has been elected a director of the Mellon National bank, Pittsburgh.

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Lewis W. Hicks Jr., grandson of Capt. Alfred E. Hicks, who founded the Allegheny Steel Co., Brackenridge, Pa., has been elected assistant secretary and assistant treasurer of the company. He has been associated with the company five years, beginning in the plant. He is a nephew of Harry E. Sheldon, president of the company, and son of Lewis W. Hicks Sr., president of the Penn Iron & Steel Co., Creighton, Pa.

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L. H. Burnett, vice president, Carnegie Steel Co., Pittsburgh, has been appointed chairman of the Share-the-Work-Movement in Allegheny county, Pennsylvania. Mr. Burnett expects to appoint a committee shortly to plan distribution of employment.

F. W. Waterman, president, National Tube Co., Pittsburgh, who is chairman of the movement in west-

ern Pennsylvania, appointed Mr. Burnett to the county chairmanship last week.

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George O. Hays, business manager of STEEL, addressed the Pittsburgh Advertising club on "Sales Objectives" at the William Penn hotel, Jan. 17.

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G. L. Bohannon, formerly eastern representative of the Thomas Spacing Machine Co., Pittsburgh, is no longer affiliated with the company, which is now handling all of its eastern business direct from the home office in Pittsburgh.

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Henry J. Hinde has resigned as president of the Toledo Machine & Tool Co., as of Feb. 1, when he will have completed more than 50 years in the business.

H. H. Pinney, executive vice president of E. W. Bliss Co., Toledo, succeeds Mr. Hinde.

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C. F. Lynch, vice president of the H. C. Frick Coke Co., Pittsburgh, has been elected a member of the board of directors of the company.

Thomas Moses was re-elected president. William Gates was re-elected secretary and C. M. Gates was renamed to treasurer. All former directors were re-elected.

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Harry F. Shaw, formerly in charge of the Carnegie Steel Co. marine ways at Coal Valley, Pa., has been appointed assistant general superintendent of the river transportation department of the Carnegie company. Mr. Shaw will be assistant to Capt. A. O. Ackard, general superintendent of the river department.

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E. D. Wolf, from 1919 to 1925 with the Taft-Peirce Mfg. Co., Woonsocket, R. I., and from 1925 to 1930 district sales manager at Detroit, and after that general sales manager at Detroit for Whitman & Barnes Inc., has joined the Ex-Cell-O Aircraft & Tool Corp., Detroit, in charge of the general sales office.

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Jonathan Moore Sr., formerly an owner of the T. A. Crane Dry Dock Co., Brooklyn, N. Y., has joined the sales department of the Todd Shipyards Corp., New York. Associated with him in his new connection are Jonathan Moore Jr. and Millard Moore—his sons—and Lloyd P. Gwyer.

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F. J. Giroux, New York, specialist in welding engineering and consulting work, has become associated with the Universal Power Corp., Cleveland, in charge of the sale of its arc welders in the New York district. After graduating as mechanical engineer from Oregon State college, Mr. Giroux completed a graduate student course with Westinghouse Electric & Mfg. Co., and in addition to consulting work has since been associated with Arcos Inc., in Belgium, and the Roessler & Hasslacher Chemical Co. For the latter company he reorganized the welding department, writing a standard practice for the welding shop design department, test and equipment specifications.

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G. Sharpless Eastburn was appointed assistant general sales manager of Central Iron & Steel Co., Harrisburg, Pa., effective Jan. 1. Mr. Eastburn has been associated with the general sales department of the Central company for the past four years. His earlier steel experience was obtained through many years' connection with the former Worth Bros. Co., Coatesville, Pa. His headquarters will be in the general sales office at Harrisburg, Pa.

G. Sharpless Eastburn

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Earl L. Ramsey, attached to the general sales office of the Ex-Cell-O Aircraft & Tool Corp., Detroit, effective Feb. 1 becomes production engineer working with sales representatives in different territories covering all products of the company. Mr. Ramsey in 1928 was made Buffalo branch manager for the William G. Harvey Co., Syracuse, N. Y., handling Ex-Cell-O products and other associated lines. On Jan. 1, 1931, he joined the Ex-Cell-O sales force as production engineer and in September, 1932, was transferred to the general sales office in Detroit.

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W. S. Shiffer, assistant general manager of sales of the Reading Iron Co., Reading and Philadelphia, Pa., was appointed general manager of sales effective Jan. 7.

J. L. Jacobson, formerly manager of sales in the central region is assistant general manager of sales. Both Mr. Shiffer and Mr. Jacobson remain in the general sales office at 401 North Broad street, Philadelphia.

Other Reading appointments are: G. H. Woodroff as manager of boiler tube sales, C. T. Ressler as manager of railroad and marine sales, and L. K. Simons as manager of cut nail sales.

Gray, Statistical Expert, Retires

NO MORE faithful service to the steel industry is to be found than in the record of William G. Gray, 75, who resigned as chief statistician of the American Iron and Steel institute, Jan. 1 He had spent almost 45 years in statistical work of the industry, and the records which he had built up in that time form a distinct and invaluable contribution.

His first affiliation with the industry dates back to 1887, when he became a proof reader and correspondence clerk for the old American Iron and Steel association, Philadelphia, of which James M. Swank was general manager. Shortly he became assistant to William M. Benney, then in charge of statistics, and in 1892 upon Mr. Benney's resignation, Mr. Gray was appointed chief statistical assistant to Mr. Swank. Nine years later he became chief statistician.

When the American Iron and Steel association disbanded on Dec. 31, 1912, directors of the American Iron and Steel institute, New York, decided to establish a statistical bureau, and Mr. Gray was placed in charge, a position he held until his resignation.

One of Mr. Gray's early appointments was that as special agent on iron and steel for the government census bureau in 1900. He prepared at that time the first census report on the tin plate industry of the United States.

Born in Philadelphia in March, 1858, Mr. Gray learned the printers' trade. Some of his early type-setting, incidentally, was on the work of the American Iron and Steel association. Later, at the age of 22, and as foreman of the book department of Allen, Lane & Scott, Philadelphia, he was in charge of the printing of various publications of the association.

EDITORIAL

Congressional Delays Again Retard Recovery

SOMETIME in the future when business is progressing smoothly on the high road of recovery, this nation will look back at the events of 1931, 1932 and 1933 and wonder why we wasted so much time in trying to make up our minds as to what should be done to solve the various major problems of the depression. In retrospect we are going to be amazed and chagrined at the unnecessarily long period of time required to transform a sound idea into constructive action.

For example, consider the problem of balancing the federal budget. The wisdom of trimming expenses to correspond to income was recognized by many individuals within a year after the crash of 1929. Nevertheless little pressure for action was brought to bear until after the collapse of the spring upturn of 1931, and even at that late date a number of reputable authorities were still questioning the necessity of balancing the federal budget. In the latter part of 1931 and throughout 1932 the demand for national economy became more insistent. Both major political parties emphasized it as the primary plank in their platforms. Candidates for public office throughout the nation pledged themselves to budget balancing.

Economy in Government Is Gaining Locally, But Politics Obstructs Action at Washington

What has been the result of this gradually increasing demand for solvency in governmental operations? Many state, city and local units have put their houses in order or are making progress toward balanced budgets. In certain political subdivisions, taxes already have been reduced appreciably. In others, politicians still are throwing away money with a lavish hand. Graft and corruption still are rampant in certain cities.

The federal government, which should set an example for the smaller units, has failed to respond to the will of the people. While it may be said that the nation cannot expect action from a lame duck congress, the fact remains that the mandate for economy has been so clearly expressed that any congress, whether comprised of lame ducks or of more conscientious public servants, should be willing to submerge political considerations long enough to attack the problems of retrenchment and new revenue.

Business and industry probably are resigned to the utter inability of the present congress to do anything more than to continue its present disgraceful spectacle. But they will expect prompt and decisive action in the forthcoming special session.

Fortunately the elapse of time has clarified the task of budget balancing. Many "ifs" and "ands" have been eliminated by the events of the last six months. Possible economies, if made effective with reasonable promptness will reduce the deficit to from $500,000,000 to $700,000,000. Of this amount about $130,000,000 could be realized from revenue of beer, providing the new administration will carry out its pledge to legalize this beverage. An amount in excess of $100,000,000 can be collected in increased income taxes. The remainder—probably $250,000,000 or more—must come from some other source.

Excise Tax on Manufactures Is Most Desirable Method of Raising Additional Revenue

The easiest and best way to raise this additional sum is through a manufacturers' excise tax levied on all manufactured articles except food, clothing and possibly a few other essentials. As pointed out by the present administration and by many eminent leaders in the Democratic party, this type of tax already is working satisfactorily on certain articles, several states are employing it successfully, and it is less painful to the consumer than taxes which accumulate for a year—such as income or real estate taxes.

A gigantic pool of investment funds is idle, waiting to be put to work. It will not be released until budgets—federal, state and local—are balanced. As long as this stalemate continues, business will be held back by restriction of credit. Therefore the action of congress on the budget, now more than at anytime in the past, is an important key to business recovery.

The present congress has a wonderful opportunity to redeem itself in the eyes of the public. By legislating economy and increased painless revenue it could wipe out the stigma of its recent misdeeds. But such hope perhaps is futile in the face of the number of representatives and senators who place self-interest above national interest.

Apparently we must wait a few months until the new congress is ready to act. What incredible delays and incalculable money losses are endured by this nation in the ineptitude of its political system!

THE BUSINESS TREND

Business Advances in Spite of Lame Duck Follies

BUSINESS is making fair progress in January in spite of numerous retarding influences. Weekly statistics show that the second week was better than the first and that the third week registered gains over the second. The barometers of general business, such as the index compiled by Joseph Stagg Lawrence for the New York *Herald Tribune* and the index compiled by *The Business Week,* show that activity in the first week of January was well above the December low points. The *Herald Tribune's* index, as of the week ending Jan. 7, had shown gains for five consecutive weeks and at that time was only 3.8 per cent below the seasonal high point of last October. *Business Week's* index in the second week of January had risen to a level comparable with that of the first week of November.

Steel ingot operating rate, electric power output and car loadings weigh heavily in these and other weekly business barometers. Freight volume and power output are expanding moderately and the steel rate has mounted from about 14 per cent at the turn of the year to within striking distance of 20 per cent. Therefore it seems possible that before the end of January some of the weekly indexes may rise to a point equal to or exceeding the high of October.

If this should come to pass, or even if the October peak were equaled early in February, it would constitute gratifying evidence that business is making noteworthy progress in spite of unusual difficulties. It would indicate that business discounted in advance the futility of the present session of congress. Certainly a congress deliberately bent upon injuring business and retarding recovery maliciously could not have acted more disgracefully than the lame ducks in their present farce.

Congress Plays Bad Boy While Nation Waits Impatiently for Needed Constructive Action

Much needed encouragement would be derived from bankruptcy reform and balancing of the federal budget. Hope is expressed that the needed legislation on bankruptcy procedure may be passed in the present session in the form of the LaGuardia-McKeown bill. However it is too much to expect that the lame duck congress will accomplish anything worth while in connection with the budget—either in curtailment of expenses or in the raising of additional revenue.

1932
Jan. 1 .....$7.73

1931
Dec. 1 .....$7.91
Nov. 1 ..... 8.09

1933
Jan. 1 .....$6.79

1932
Dec. 1 .....$6.89
Nov. 1 ..... 6.97

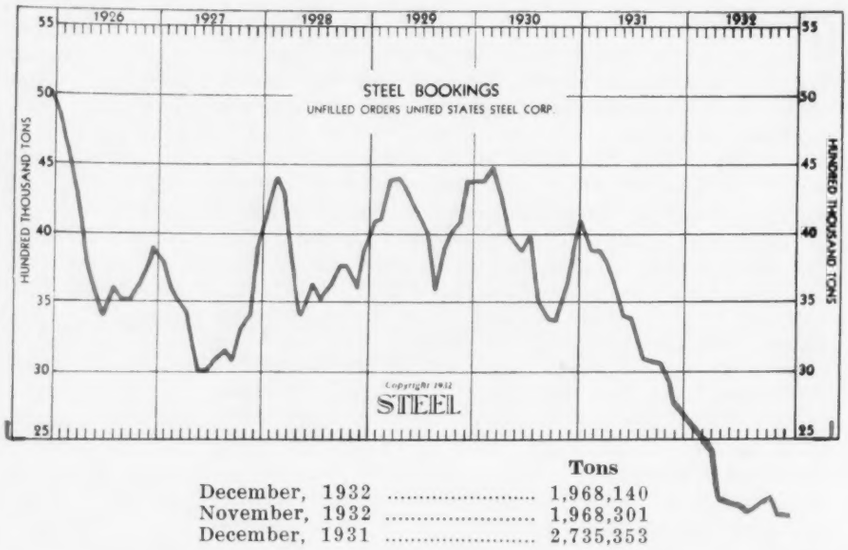
November, 1932	61,760
October, 1932	51,625
November, 1931	70,114

Automobile Production Steps Up in November

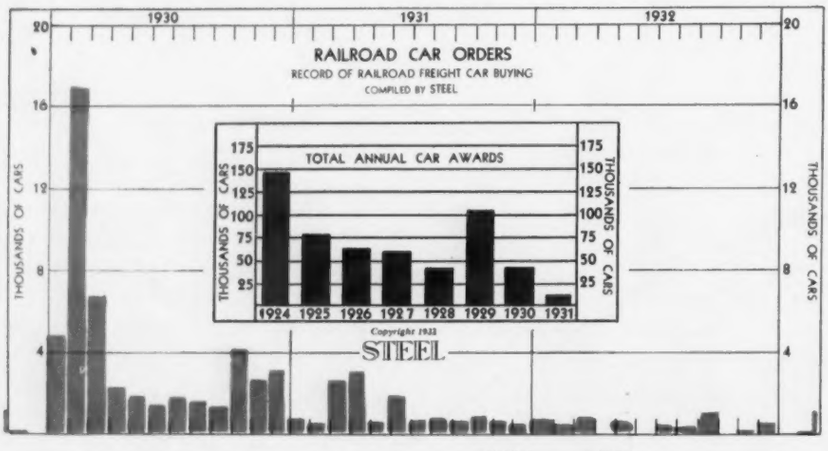
Production of cars and trucks in the United States and Canada during November totaled 61,760 units. This is a gain of nearly 20 per cent over the previous month but slightly lower than the 70,114 units produced in November last year. According to the monthly report from the United States department of commerce output for 11 months of 1932 aggregated 1,323,964 units, 58,677 of which were produced in Canada.

December Unfilled Tonnage Decline Negligible

Th backlog of unfilled orders of the United States Steel Corp. dropped only 161 tons in December and at the end of the month totaled 1,968,140 tons. Unfilled tonnage on Dec. 31, 1931 totaled 2,735,353 tons compared to 3,943,596 tons during the same period in 1930 and 4,417,193 tons in December 1929. During the past 10 years eight have registered increases in tonnage at the end of December and two, 1922 and 1931, have shown declines.



	Tons
December, 1932	1,968,140
November, 1932	1,968,301
December, 1931	2,735,353



	1932	1931
December	50	11
November	2	35
October	0	980

Total Car Awards in 1932 Reflect Market Dullness

With the awarding of 50 domestic freight cars for December, builders of rolling stock have thus ended a year of retrogression. Final figures for 1932 indicate the awarding of only 1,739 cars compared with 10,694 in 1931, and 45,-146 cars in 1930. During this past year there were three months in which no awards were placed. The best month was September, when 1,298 cars were awarded, most for the Pennsylvania to its own shops.

Designers' sketch of Sky Ride, now being constructed at the Century of Progress international exposition, Chicago. Approximately 3000 tons of structural steel and cable are required

1850-Foot Sky Ride at World's Fair Embodies Spectacular Design

SEVERAL interesting features are involved in the design and fabrication of the 628-foot steel towers of the Sky Ride now being built at Chicago for A Century of Progress international exposition, which opens in that city June 1. The Sky Ride will comprise two towers, located 1850 feet apart, supporting a track cable system at an elevation of about 234 feet on which ten rocket-propelled passenger cars will be suspended. Observatories are to be located at the tops of the towers which will exceed the height of any of Chicago's skyscrapers. Four elevators will serve each tower, two operating to the ride level and two to the observatory. The rocket car system is designed to accommodate 4800 persons per hour.

Each tower covers a base area of 110 x 110 feet. The main grillage is composed of a steel slab 7 inches thick and five 20-inch I-beams welded together to form one unit, each unit weighing about 7000 pounds. Due to the distinctive type of architecture adopted for the exposition, it was desirable that the towers, which will be the most conspicuous single items at the fair, be designed with similar characteristics. This situation required the strength of the material to be shown boldly and utilized to its fullest extent, eliminating the use of large laced corner members, curved members and other features employed on previous towers.

It was necessary in following this architectural motif to maintain as great a distance as possible between panel points. Robinson & Steinman, New York, consulting engineers, accomplished this by designing a built-up section for the corner columns, made up of three I-beams, two of them being 20-inch beams and the third a 15-inch beam. These members are arranged in H form, with a 15-inch beam acting as the web. Through the use of this section it was possible to space the panel points about 25 feet apart, whereas if a single rolled section of equivalent weight had been used, it would have been necessary to make the panel points about 16 feet apart in order to keep the same unit stress in the member. The bottom column section is made of two 20-inch, 150-pound I-beams and one 15-inch, 90-pound beam. The larger beams, of somewhat unusual weight, were rolled by the Inland Steel Co., Chicago. Column sections gradually diminish at higher elevations, and at the top the column is made of two 20-inch 65.4-pound I-beams and one standard 15-inch 42.9-pound I-beam. The various gusset plates for the

bracing members are fastened to the figures of these columns, and it was necessary that the 15 and 20-inch beams be rolled to much closer tolerance than usual, in order that the finished column would maintain theoretical dimensions with a minimum variation.

In welding the columns the three I-beams were tack welded together and placed in a frame. The column then was rotated so that the web of the 15-inch beam was at a 45-degree angle and the final welding was accomplished by means of a portable automatic welding unit designed by the Mississippi Valley Structural Steel Co., Decatur, Ill., fabricator of the project. This machine runs on the flanges of the 20-inch beams and welds vertically, producing a horizontal surface to the weld as the result of the 45-degree inclination of the beam. The carriage was so arranged that any predetermined number of lineal inches of welding could be done, upon completion of which the welding would stop automatically and the welding head move forward until it had arrived at the next predetermined point, at which it would automatically start welding at a regular rate. Edges of the 15-inch beam flange were welded on both sides to the webs of the two larger members.

Special Welding Technique

Another unusual fabricating operation was the forming of the main diagonal braces and struts. These pieces are made of two channels and a web plate and were welded by a stationary automatic machine also developed by the Mississippi Valley company. Welding is accomplished on both sides of the web plate at one operation, as shown in an accompanying illustration, the machine automatically holding the material in proper position and also automatically pulling it past the welding heads as required for welding. Web stiffeners introduced in the braces and struts comprise bars welded by hand to the channel and plate members. Bases for the main tower columns and also the tail columns are a combination of riveting and welding. An all-riveted design was considered rather cumbersome, while the combination process produced a neat and substantial base detail with greater strength and rigidity.

Artist's conception, in perspective, of 1850-foot sky ride, with rocket cars traveling 200 feet above ground level

Battledeck floor construction is to be used for the floors in the house at the 218-foot level and for the two levels in the top observatory. Elevator shaft enclosures will consist of formed 16-gage steel sheets filled with rock wool. An emergency stairway from the 218-foot level will be enclosed similarly and will be connected to the tower in such a manner that any wind stress resulting in swaying of the latter will not be transmitted as stress into the corner columns supporting the stairs. This is accomplished by an arrangement of a steel link and two pins, one pin to be connected to the tower proper, the other to the emergency stairs.

Novel Window Construction

Windows in the observatory will be arranged on a double level, with the lower half sloping upward. This arrangement introduces complications in steel framing which have been solved by the use of 5-inch I-beams as main mullions between the window sections.

This project also is unusual in its organization in that the various participating contractors are investing their own money with the expectation of being repaid through receipts from operation of the Sky Ride. Major companies identified with this work include the Great Lakes Dredge & Dock Co., Chicago, providing the piles, foundation and anchorages; Inland Steel Co., furnishing the various steel products; Mississippi Valley Structural Steel Co., steel fabricator; Otis Elevator Co., New York, supplying elevator equipment; John A. Roebling's Sons Co., Trenton, N. J., providing all cable work, rocket cars and operating mechanism.

Manufacture of rocket cars has been sublet to the Zeppelin Corp., Akron, O. Overland Construction Co., Chicago, will erect the structural steel. Joshua D'Esposito, Chicago, is serving as chief engineer of the project of which Robinson & Steinman, New York, are designers. E. T. Blix is chief engineer for the Mississippi Valley Structural Steel Co., in charge of steel fabrication. As pointed out in STEEL, Dec. 19, p. 14, the project will require 2000 tons of structurals and 1000 tons of cable.

◆

AUTOMATIC welding machines used for assembling structural work for towers of the sky ride. Specially designed machines were required for this work

◆

Gear Standard Approved

American Standards association has approved a new American standard on spur gear tooth form—a combination of the data on the 14½-degree composite system and the 20-degree stub involute system approved in 1927 as a tentative standard and new data referring to the 14½ and 20-degree full-depth involute systems.

Develops Low-Cost Alloy For High-Speed Cutting

A NEW metal cutting alloy, containing iron, cobalt and tungsten, and for which a promising future is indicated by extensive service tests, has just been announced and made available for commercial use. This material, made in the electric furnace, can be forged or rolled, machined and heat treated, and has characteristics midway between high-speed tool steels and cemented carbides. Its cost is somewhat higher than high-speed steel, but many times less than the cemented carbides.

The material is designated as alloy 548, because that was the number of the heat in which it was obtained, and it is a development of the Carboloy Co. Inc., Detroit, a subsidiary of the General Electric Co., Schenectady, N. Y.

First announcement of the alloy was made before a meeting of the Cleveland chapter of the American Society for Steel Treating, Jan. 16, by Dr. Zay Jeffries, president, Carboloy Co. Inc., and consulting metallurgist for the Aluminum Co. of America, General Electric Co. and National Tube Co. Credit for the development is given to W. P. Sykes, metallurgist, Cleveland Wire Works of the General Electric Co., and C. P. Miller, Romley, England, both of whom had conducted similar independent researches and whose efforts later were co-ordinated in ultimate perfection of the material.

Electric Furnace Product

Unlike other cutting tool materials of the Carboloy Co., alloy 548, according to Dr. Jeffries, is not a cemented carbide, but is an electric furnace product containing iron, cobalt and tungsten and is practically carbon free. Cemented carbides must be formed to shape and require no heat treatment, but the new alloy is cast into ingots, may be forged or rolled, machined, and is heat treated to develop the characteristics of hardness and toughness. It is not particularly sensitive in its chemical composition and, therefore, can be duplicated without difficulty in successive furnace heats.

The alloy will machine satisfactorily both cast iron and steel, whereas the cemented carbides find their greatest use in cutting cast iron and various nonferrous materials. In results, the material stands about half way between high-speed steel and tungsten carbide, for example, with high-speed steel removing metal at a speed of 150 feet per minute and tungsten carbide at 750 feet; alloy 548 will operate at 350 feet. Advantages of the alloy are said to increase as the hardness of material being machined decreases. Because of the high degree of hardness, tools require infrequent regrinding.

Alloy 548 will be available at a base price of $4.50 a pound, and therefore is not directly competitive with high-speed tool steel which is in the neighborhood of 75 cents a pound. Cemented carbides, however, are approximately $200 a pound.

Claims Are Conservative

When the cemented carbides first were introduced in 1928, they were overpublicized with extravagant claims, asserted Dr. Jeffries, with the result that failures in certain applications impeded their progress and legitimate adaptation. They now have found their proper niche alongside other cutting materials. Therefore, in introducing alloy 548, a conservative policy is being adopted. Regarding this, Dr. Jeffries commented as follows:

"Machine manufacturers throughout the world have been demanding a cutting material which would fill the gap between high-speed steel and the cemented carbides, and we think we have found the answer for them. We have convinced ourselves it has an acceptable place in the cutting field, but we ask that you let us go slowly enough to appraise it. We may be mistaken that it has a place, but if it has, it will not displace other cutting tool materials."

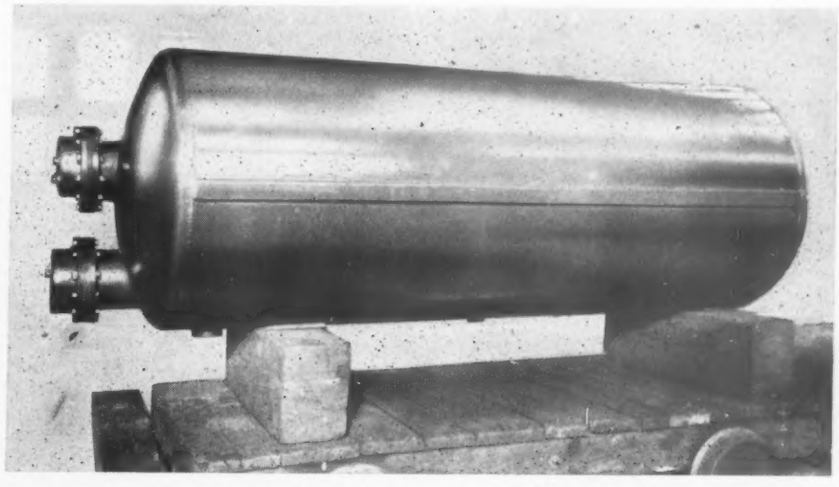
Chemical and physical characteristics of the material were described by Mr. Sykes, who stated that at the Cleveland Wire Works, he first came upon the unusual hardening characteristics of the alloy while investigating the effect produced by substituting cobalt for some of the iron in the simple iron-tungsten alloys with which he had worked for several years.

Age Hardening Occurs

In the iron-tungsten system, it is possible to put some 30 per cent tungsten into solid solution in the iron by quenching from 1500 degrees Cent. The presence of this tungsten in solid solution raises the brinell hardness to about 180 from the brinell 70 of pure iron. By precipitation hardening this brinell number can be further increased to about 400.

Precipitation hardening is possible because of the fact that iron dissolves 30 per cent of tungsten at 1500 degrees Cent. but only some 6 per cent at 500 degrees. As the temperature falls below 1500 degrees, some of the tungsten tends to separate from the iron in the form of crystals of an iron-tungsten compound. If the alloy is cooled slowly, the precipitated tungsten compound takes the form of massive crystals.

When the precipitate exists in this form in an alloy of iron plus 30 per cent tungsten it has little effectual



NICKEL-CLAD STEEL WATER STORAGE HEATER: This 1000-gallon heater, recently placed in service in the Jolicoeur Laundry Ltd., Montreal, Que., is formed from one nickel-clad steel plate 149¾ x 119 inches, 5/16-inch thick, with 10 per cent cladding. The two heads are formed from 7/16-inch nickel-clad steel, also 10 per cent clad. The heater, tested to a pressure of 135 pounds per square inch and operating at a working pressure of 90 pounds per square inch, is of electric welded construction, with the continuity of pure nickel on the interior preserved by welding with nickel to close the break in the clad surface at the joints. Outside welds are the usual type of steel welds. Fabrication was handled by the Montreal Locomotive Works Ltd.

hardening action, however, by quenching such an alloy from 1500 degrees Cent. to retain the tungsten in solid solution and then reheating at 600 to 700 degrees the iron-tungsten compound separates from the solid solution in a very finely divided state and the hardness of the alloy is increased to its maximum of about 400 brinell or 50 Rockwell C. The temperature at which precipitation hardening begins is a characteristic of the alloying element.

Shows Red Hardness

For the iron-tungsten alloy, the hardness increases slowly at 600 degrees Cent. and has not yet reached a maximum after 200 hours. At 700 degrees it hardens rapidly and remains fairly constant between 25 and 150 hours. This property is known as red hardness and is a requisite for tools to be used at high cutting speeds.

One of the first effects observed when cobalt is substituted for iron in these alloys is a marked increase in hardness, both in the quenched state and after aging. After the cobalt has replaced 10 per cent of the iron by weight, in the case of the base alloy of iron plus 30 per cent tungsten, the hardness values increase rapidly. At 25 per cent cobalt the secondary hardness (or hardness after aging) has a maximum of Rockwell C 70 to 71. This represents a remarkable increase over the Rockwell C 53 which was the maximum developed in the simple iron-tungsten alloys.

The cobalt-bearing alloys, moreover, begin to harden at about 400 degrees Cent. At 500 or 600 degrees the increase is extremely rapid. While the hardness thus developed is somewhat less permanent at elevated temperatures than is that of the iron-tungsten alloys, it is nevertheless remarkably resistant to extended heating at 600 degrees Cent.

Mr. Sykes illustrated his discussion of the ternary iron-cobalt-tungsten alloys with numerous lantern slides showing photomicrographs. Among these alloys were one containing 20 per cent tungsten, 30 per cent cobalt and 50 per cent iron; and another containing 30 per cent tungsten, 15 per cent cobalt and 55 per cent iron.

Preheating Is Factor in Using Blast Furnace Gas in Soaking Pits

USE of blast furnace gas in soaking pits has developed along two different lines, according to G. T. Holett, steam and combustion engineer, South works, Illinois Steel Co., Chicago, addressing the annual meeting of the American Society of Mechanical Engineers in New York, Dec. 5-9. One calls for the use of cold blast furnace gas with preheated air and the other for the preheating of both the gas and the air. Where air only is preheated, he said, the final temperature of the air must be much higher than where gas and air both are preheated to produce equal flame temperature. Where both are preheated, the cost of the installation necessarily will be considerably greater on account of separate checker chambers, flues, valves, etc., for air and gas.

Mr. Hollett also concluded that not enough practical data are available to state a relative efficiency of the two types of pits under actual working conditions, but believed a low B. t. u. fuel consumption per ton of steel heated could be obtained by preheating both gas and air. He also stated that the relative cost of fuel for the particular locality is an important factor in determining the premium, or extra cost one can pay to obtain lower fuel consumption.

C. W. Spicer, vice president and mechanical engineer, Spicer Mfg. Corp., Toledo, O., in his paper on carburizing with butane gas, declared that the hydrocarbon gases of the paraffin series used for commercial carburizing, when applied without the admixture of air or other gases, apparenty give up carbon to the steel during cracking processes which occur at certain rather sharply defined temperatures. Operating conditions which give satisfactory results with one hydrocarbon may not produce satisfactory results with other hydrocarbons. However, he said, these conditions are not difficult and can be fully understood. He enumerated advantages which well controlled butane has to offer and related experiences and general observations regarding the physical chemistry of the paraffin hydrocarbons. He also described a flow meter for measuring the flow of carburizing gas to the furnace.

Radiation Effects Studied

H. C. Hottel, associate professor of fuel engineering, department of chemical engineering, Massachusetts Institute of Technology, Cambridge, Mass., and H. D. Keller, engineer with Professor W. Trinks, Carnegie Institute of Technology, Pittsburgh, in a discussion of the effect of re-radiation on heat transmission in furnaces and through openings, presented curves from which the re-radiation and total radiation factors can be read at a glance, for various shapes and proportions of radiating surfaces or openings. Incidental to the chief results, two methods of solving integral equations were presented.

Special steels for castings were discussed by R. A. Bull, director, Electric Steel Founders' Research Group, Chicago, and malleable iron as a component part of machines and structures, by Enrique Touceda, consulting engineer, Malleable Iron Research institute, Albany, N. Y. Mr. Bull commented upon the diversified properties developed by heat treatment, the varieties of alloy cast steels, and the characteristics of special steels for castings. Mr. Touceda discussed the properties of malleable iron and its machinability; also size restrictions and competitive materials.

Shape Plans for Engineers' Day at World's Fair

Program for Engineers' day at the Century of Progress exposition, Chicago, according to information now available, includes an assembling of engineers at the exposition grounds at 9:30 a.m., Wednesday, June 28. At this time a detailed program of the day's activities will be given each one present, as well as an Engineers' day badge. Following the assembly, guides will conduct the engineers on a tour of inspection to various scientific exhibits, prepared in the effort to exemplify the exposition from the engineering viewpoint.

The visitors will assemble again at noon to hear special addresses by prominent scientists and engineers. Following luncheon, visits to exhibits will continue. Activities will be climaxed by an Engineers' day banquet in the evening at Stevens hotel, where accommodations for 2500 are being planned. Further addresses will be heard at this time.

Flange Standard Revised

A new American standard for steel flanged fittings and companion flanges, replacing a former tentative standard, has been approved by the American Standards association. Pressure ratings of 300 and 1500 pounds per square inch, respectively, in the new standard, replace the old tentative standard ratings of 250 and 1300 pounds per square inch. Revision of the old standard has resulted further in changes of certain dimensions, such as the minimum metal thickness of some fittings, which was increased on account of the increase in two pressure ratings. Copies are available from the association, 29 West Thirty-ninth street, New York.

IMPROVING OPEN-HEARTH FURNACE DESIGN

BY WILLIAM C. BUELL JR.

Part IV—Mechanics of the Roof

(Sixteenth Article of Series)

CONSIDERABLE rearrangement of stress at the roof abutments is demonstrated in Table XLI by the alteration of the angles of reaction to a relatively small degree. Increasing the included angle considerably decreases the horizontal thrust *HF* and increases the vertical effect *DF*. Horizontal thrust as later will be shown presents a problem in its restraint and the point made should be considered carefully.

Roofs that are too flat, besides being unstable, produce excessive stresses on the skewback and buckstay system and accordingly are subject to early failure from this cause which to a considerable degree may be mitigated by proper design. Roof characteristics of existing furnaces are presented in Table XLIII.

A statement previously was made that roofs having a rise of less than 1½ inches per foot of chord will be unstable statically because the line of resistance will not remain within the middle third of the arc. Therefore, roofs, A, G, M, N and O which are shown to have rises of less than 1½ inches are unstable. The roof of furnace G is peculiar in that it employs a compound radius, the front portion being designed with lesser radius than the rear portion. It is doubtful if such an intricate design is ever necessary.

Range of Roof Rise Varies

The other roofs which, without exception are stable by virtue of their design, have rises within the limits 1½ to 1.608 inches, barring that of furnace L which is shown with a rise slightly in excess of 2 inches. The 60 degree included angle, which is highly recommended for general acceptance, is found in the roofs of furnace B, C, D and I and is closely approached in furnaces H and K.

The foregoing roof data were taken from the original construction drawings and as in the usual course of operation these roofs likely have been replaced, the weaknesses of certain roofs probably have been found and a better design substituted. However, this does not free the original designer from the charge of faulty engineering.

Incorporates Many Features

So long as the base principles are correctly applied to the design, and a high-grade craftsmanship incorporated in the construction, it is probable that roofs varying considerably in their details will give about the same ultimate economy. In the design to follow there is shown a roof which has a number of features that point to a stronger and longer lived roof. As shown and dimensioned it is suitable for use with the bottoms of Table IX and the standardized back wall of Fig. 19 and the front wall of Fig. 20. Its adaption to any furnace with any roof or rib thickness is accomplished easily.

The roof as recommended is shown in Fig. 31 and the general dimensions applying to furnaces of 100 to 350 tons are given in Table XLII. While Fig. 31 shows the design of an 18-inch roof with 22½-inch ribs, the actual thickness may be as desired.

Probably, the feature of the design is the use of the thicker rib brick throughout the length of the hearth at both front and rear of the roof. This construction has been used several times at the back wall, but its use at the front wall is new. This design feature is found in furnace B.

The erosive action of the furnace gases and slag are particularly severe near the junction of back wall and roof which area is most difficult to maintain. Ordinarily a severe failure in this area brings the furnace campaign to a close.

The use of the rib brick at the back wall as shown adds an extra roof

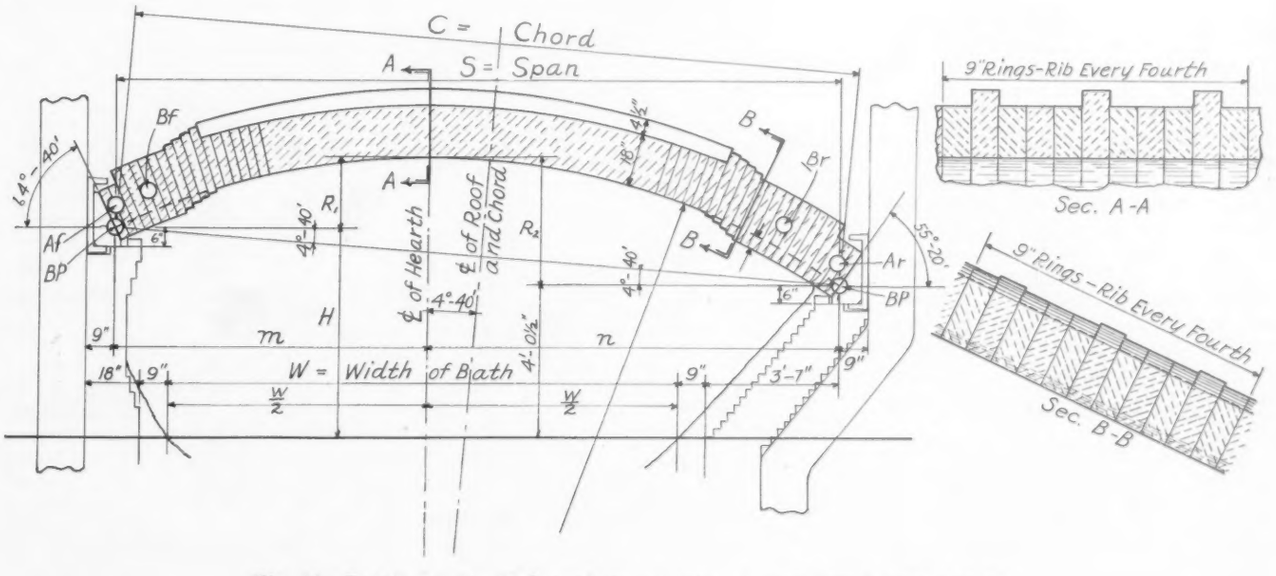


Fig. 31—Details of developing advanced type of open-hearth roof design

depth at the area in question and is certain to add proportionately to the roof life. In addition, it has the valuable property of permitting a much stronger skewback brick design, allowing the roof brick to bear in their full area against a skewback brick face of maximum area, with the toe of the skewback brick set back at least 6 inches on the top of the back wall, if an 18-inch back wall is used. This gives the toe maximum protection against the furnace heat, but still allows a substantial skewback brick to be developed. For reasons similar to those heretofore given the use of an analogous design at the front wall logically may be recommended. The method of developing this advanced type of roof is detailed in Fig. 31.

Starting at the back wall two or three courses of roof brick are laid as may be necessary to clear the upper flange of the skew channel, these brick being shown as A_R. Next the section B_R of rib brick, usually about 14 brick, are laid with the extreme outer three or four courses corbelling upward to meet the underside of the roof brick at the normal roof radius. Three rings of roof brick to each ring of rib brick then are laid towards the front wall and section B_F in which about ten of the rib brick are used. The arch is completed with a course or two of roof brick, section A_F, laid adjacent to the skewback brick. The basing points, BP, as will be noted, are at the intersection of the normal roof radius and the face of the skewback brick. Inspection of these points clearly indicates the added area to the skewback brick, resulting from the use of the recommended method.

How Brick Are Laid

The arch of Fig. 30 was solved for the roof of a 150-ton furnace, Fig. 31. In the solution of Fig. 30 it was found that the total reaction at F_1 was 14,100 pounds and at F_2, 15,560 pounds. These values were determined for a roof section 36 inches long so that if an 18-inch brick bears on the face of the skewback brick at A and B, the force exerted at A will be (14,100/36 × 18) 22.0 pounds per square inch and at B (15,560/36 × 18), 24 pounds per square inch. If the curve for crushing strength of silica brick, Fig. 23, is examined, and a maximum temperature of 2800 degrees Fahr. at the face of the skews assumed, the crushing value of about 160 pounds, per square inch allows a safety factor of more than 4, which is ample.

When developing the design of an open-hearth roof the engineer should show the actual values of the radius and rise of the roof under operating conditions. Unless this suggestion is followed, his calculations of the stresses within the roof and the reactions at the skews will be of little value. In constructing an open-hearth roof from drawings the construction crew first secures the proper arch centers or forms upon which the roof brick will be fitted by the mason to secure the proper roof curvature. These centers are constructed at the radius of the drawings. With the centers correctly located with reference to the skews, the mason fits the roof brick, all but the keys, in correct relation to the radius and each other. The keys then are fitted and driven and upon this operation depends whether the roof, when hot, will conform to the design; or, whether it will raise to such a degree as to considerably shorten the radius, increase the included angle and the rise materially, make virtually worthless the calculations of stress and reaction, and place the inner arc L_1 under such great compression that the brick will be deformed at the first heating.

How Arch Is Keyed

Masons of the older school are prone to key an arch by driving as many as four keys per ring in position with heavy mauls. With the keys seated tightly the roof frequently has been observed to raise off the centers 2 or more inches. The effect of this is to increase the rise and as the length of the chord is unchanged the effect is to shorten the radius and increase the included angle. When the furnace is heated, the inner arc L_1 again is lengthened as a result of thermal expansion and the roof moves upward a second time.

The inner arc expands to a much greater degree than the outer arc L_2 and consequently the brick at L_2 tend to separate, placing the entire arch stress on the line of L_1. Under this condition the brick near L_1 deform if the temperature is sufficient, or fail through compression or spalling if the temperature is relatively low. In either case the roof has been damaged sufficiently to greatly modify its best life.

(To be continued)

Table XLII

General Dimensions for Use with Roof Design of Fig. 31†

Furnace capacity, tons	Width of bath, W, feet Table IX	Height of front wall, H, ft.—in. Table XXVIII	S and rad. W—5′-9″ ft.—in.	ROOF C*	m, feet	n, feet	R_1, feet	R_2, feet	Area above foreplate, sq. ft.
100.....	12	5— 6	17—9	....	7.50	10.25	1.697	3.173	96.00
150.....	14	5— 8	19—9	....	8.34	11.41	1.910	3.530	110.00
200.....	16	5—10	21—9	....	9.19	12.56	2.080	3.886	132.25
250.....	18	6— 0	23—9	....	10.06	13.69	2.276	4.236	151.92
300.....	19	6— 1	24—9	....	10.45	14.30	2.365	4.425	162.50
350.....	20	6— 1¾	25—9	....	10.87	14.88	2.460	4.605	173.20

*1.0033S, considered the same as S.
†Included angle $\theta = 60$ degrees.

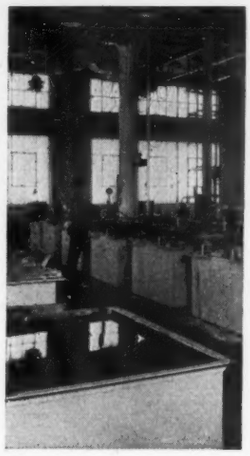
Table XLIII

Data of Certain Furnace Roofs

Furnace	Type* a	Inclination Included angle θ Deg.—Min. b	Inclination of chord γ Deg.—Min. c	Length of chord C Ft.—In. d	Radius rad Ft.—In. e	rad/C f	Total roof rise R Inches g	Rise per foot of C Inches h	Static condition† i
A	H	52—46	Hor.‡	16—0	18—0	1.125	22½	1.406	Un.
B	H	60—0	Hor.	19—6	19—6	1.000	33½	1.608	St.
C	H	60—0	Hor.	21—7½	21—7½	1.000	41 1/16	1.608	St.
D	A	61—10	1—30	18—0	18—0	1.000	31½	1.608	St.
E	A	53—30	2—0	18—6	17—1¾	0.927	31	1.808	St.
F	H	56—8	Hor.	16—0	17—0	1.0625	24	1.500	St.
G	H	49—40	Hor.	18—0	¶	1.194	24	1.333	Un.
H	A	53—30	1—30	19—6	20—1½	1.032	31	1.590	St.
I	A	60—0	3—0	19—6	19—5	1.000	31½	1.608	St.
J	A	56—0	2—30	22—0	23—6½	1.608	33½	1.522	St.
K	A	58—30	2—15	20—3	20—10½	1.030	32	1.579	St.
L	A	70—38	5—0	18—10½	16—9	0.888	39⅜	2.085	St.
M	A	51—30	1—30	20—3	23—4⅛	1.152	27⅞	1.375	Un-
N	H	47—24	Hor.	19—6	24—3	1.244	24½	1.256	Un.
O	H	46—16	Hor.	21—9	28—0	1.288	27	1.241	Un.

*H—Both skews at same elevation. A: Skews at different elevations.
†St: Statically stable. Un: Statically unstable.
‡Hor.: Horizontal.
¶20—3/22—10⅞

Making the Most of



METHODS AND MATERIALS

A TEST of stainless steel cable as compared with galvanized, plain-carbon cable, recently was completed in New York harbor. Exposed to salt water and sea air, the galvanized plain-carbon cable rusted to shreds at the end of four months, while at that time the stainless steel cable was the same as new excepting that its luster had dulled. This test confirms an experience of a marine user of cable who has a certain application in which he replaced galvanized, plain-carbon steel cable every 18 months. This user put in stainless steel cable six years ago and there have been no signs of deterioration from attacks by salt water or sea air.

$ $ $

Acute blistering accompanied with black specks in the cover coat enamels was encountered by a plant on all types of castings being made. At the same time this manufacturer ran into an epidemic of holes in the castings and "burn-ins." Upon checking back, it was found that the company had turned to the use of a highly recommended local sand, ignoring the merits of a sand which had been used for several years with good results. The new sand was highly organic with improper bonding strength.

$ $ $

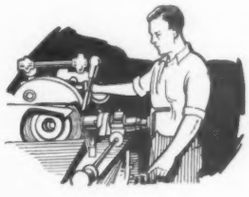
CAMS, cam rollers and eccentrics are machine parts which because of a constant motion and frictional rub undergo great wear. Rebuilding these worn surfaces to size with a wear-resisting nonfuming bronze welding rod or nonferrous hard facing material has saved many plants much money. For heavier machinery these parts can be replaced rapidly by similar sections cut out by means of the cutting blowpipe to save ordering and delivery time. An example of this is the cam of an automatic feeder which normally lasted from 6 to 12 weeks in service before replacing it with a new cam at a cost of $21. By applying a coating of hard facing material ⅛ inch thick on the entire wearing surface the cam now lasts 52 weeks before requiring reconditioning and instead of replacing it then a new facing is applied at a total cost of less than $6.

$ $ $

In certain plants it is customary to reclaim undersized machine or ground parts by chromium plating where the amount of added material does not exceed 2 to 3 thousandths of an inch. One large automobile manufacturer is said to have saved several thousand dollars a day in 1929 by this means.

$ $ $

From experience and test data gathered by a manufacturer of rotary pumps, a gray iron of the following analysis will give very good resistance to the many types of abrasion encountered, will be strong, possess a close grain structure free from casting difficulties, and lastly will be free



machining: Total carbon, 3.20 to 3.30; combined carbon, 0.50 to 0.60; silicon, 1.60 to 2.00; manganese, 0.60 to 0.70; phosphorus, 0.30 maximum; sulphur, 0.10 maximum; nickel, 1.00 to 1.25; and chromium, 0.25 to 0.35 per cent. The silicon is to be varied according to the cross sectional size of the casting.

$ $ $

By the use of large-diameter wires and a large capacity gun, such as has been developed recently, machine parts may be reclaimed by metal spraying at surprisingly low cost. For instance, using ⅛-inch diameter rods, which may be applied at the rate of 6 pounds per hour, the total cost including metal, oxygen, acetylene and the labor, will approximate 50 cents per pound for the cheaper steels such as Norway, cold-rolled and high-carbon steel, and $1 per pound for the various stainless steels or for monel metal. One pound of metal sprayed upon 1 square foot area will produce a coating about 0.025 inch thick. It is apparent that a few pounds of metal may reclaim an expensive machine part. The restrictions in the use of various metals are less than with welding. Worn areas on bronze pump sleeves, for instance, may be built up with monel metal, aluminum on bronze or vice versa; in fact, almost any metal may be applied on any other metal.

$ $ $

A LARGE steel fabricating interest is organizing a brewery department, based on the belief that the brewery industry in this country will be legally revived in the near future and that this industry will come into the market for a great deal of brewery equipment, fabricated in part from stainless steel.

$ $ $

In oxyacetylene welding of 18-8 or chrome-nickel alloys, there is a tendency for the pieces to buckle and go out of shape on account of their relatively higher coefficient of expansion. This can be controlled by preheating and by the use of jigs and chill plates and by proper manipulation this difficulty may be eliminated entirely.

$ $ $

Without warning, the purchasing department of a manufacturing plant put a new type of steel stock into the enameling department. It so happened that this plant had been getting along extremely well with a normal pickling time, but out of a clear sky a deluge of copperheads was encountered. It was only after checking everything in the plant that the trouble was found to be in the pickle room. The new stock had a slick, dense, close-knit surface which required an abnormally long time in pickling to remove this outer surface and roughen it up enough so that good enameling was insured. If the enameler had been warned of this change in stock, he would have immediately checked this very feature.

Courtesy, Mercury Mfg. Co., Chicago

An all-steel train of industrial trailers; weight is kept down, so that larger loads may be carried

LARGE USES OF STEEL IN SMALL WAYS

235th Article ◆ Industrial Trailers

ASCENDENCY in importance of the electric and small gasoline tractors in the handling of materials in many industries has been rapid since shortly before the war. With the perfection of the motive power, improvements in the load-carrying units of these industrial trains became necessary to accommodate the heavier burdens being moved. Steel was the natural choice of material in the development of a sturdier and more efficient trailer. During the past ten years the tractor trailer has become an all-steel unit, its manufacture during that period accounting for the consumption of about 20,000 tons of various steel products. Nearly 150,000 steel trailers have been built.

Design Ideas Change

When the electric tractor was introduced nearly 20 years ago the old hand trucks, with a few alterations, were employed as the load vehicles. Built principally from wood and cast iron, and designed for loads and motive speeds commensurate with manual operation, these units soon proved to be unadaptable to the new requirements. The first trailers designed for use with tractors, while more substantial than the hand trucks, also were built largely from wood and gray iron castings, with pin roller bearings.

After a few years, however, it was demonstrated that the wood frame was not strong enough to withstand hard service, and that its construction was not economically susceptible of minor variations in platform width and length, which were necessary because of users' desires for a wide range in trailer dimensions. Some difficulty also was encountered at times with cast wheels and forks. This situation resulted in the design of the modern all-steel trailer.

Frame Now of Steel

The vehicle commonly used today has a main frame built of two steel tee sections, bent to shape and held at each joint by a piece of flat stock riveted to both flanges of each section. Further strengthening is effected by two inner longitudinal sills made of steel angles. Racks, or stanchions, employed to hold the load on the trailer, are made from high-carbon brazed steel tubing and are removable from their sockets which are steel castings riveted to the underside of the tee stem.

Casters are used in connection with the front wheels. The caster plate is of rolled steel and the fork and wheels are cast steel, as also are the rear axle brackets. Roller bearings are installed on all four wheels, as well as on the two casters. Wood usually is employed for the platform floor to eliminate slippage of the load and noise in its loading, although steel floor plate occasionally is used for certain special installations.

Regulation of the dimensions of the trailer in its manufacture is accomplished easily by varying the size of the frame tee platform section. Special trailers also have been developed, such as units equipped with dump bodies or steel box bodies, for the handling of bulk material or small articles.

Requiring no track other than the floor of a plant, terminal or warehouse, or the surface of a plant yard, the tractor train has proved invaluable in solving many problems of transportation; and steel has been of similar importance in the development of this servant of industry.

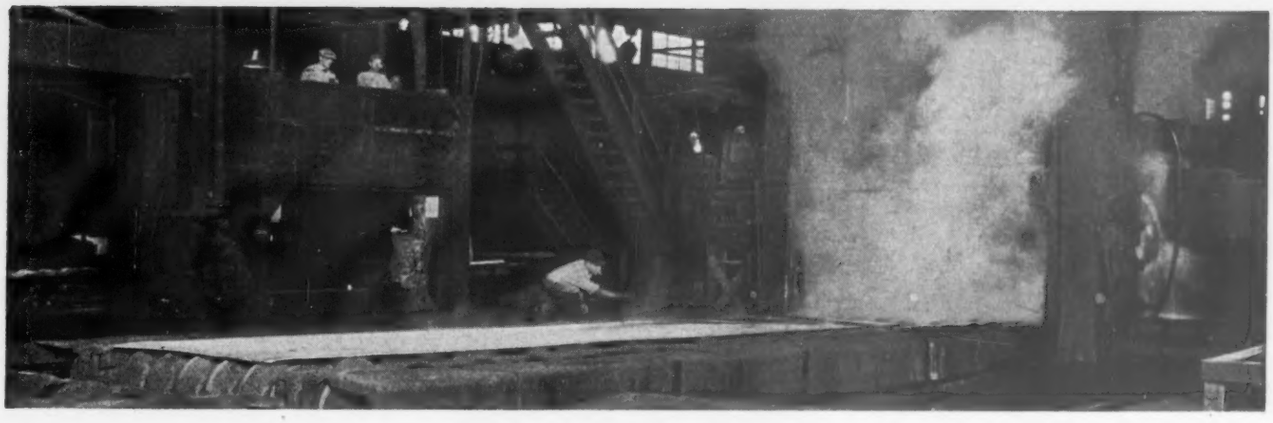
Gray Iron Institute To Hear Of New Opportunities

Announcement is made by the Gray Iron institute, Cleveland, through Arthur J. Tuscany, manager, of the completion of the program, which is to form the basis of the general meeting of the institute at the Congress hotel, Chicago, Jan. 26. The meeting will be opened by an address presented by John N. Van der Vries, manager, north central division, Chamber of Commerce of the United States, who will describe present opportunities open to industry due to changed economic conditions, and how alert groups are preparing themselves for the increased business activity immediately ahead.

Following this address the meeting will be given over to a series of discussions on the major activities of the institute. Each of the important phases of this work will be described, the discussion in each case to be inaugurated by key men, followed by talks by various other members. In this open forum type of meeting the following subjects will receive detailed attention: New specifications for gray iron and the increased opportunities offered the buyer and seller; the reciprocal fire insurance plan of the institute; marketing of gray iron castings and new developments; and improved accounting methods in the light of recent economic developments.

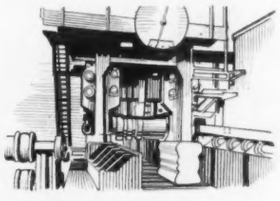
Builds Sheet Mill Motors

Two 250-horsepower, 273 revolutions per minute synchronous-type motors with exciters and control and two complete reduction gear units with couplings to reduce to mill speeds of 32.7 and 34.9 revolutions per minute, have been furnished to a large steel company in California by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. This equipment, to be used to drive two cold sheet mills, although built in different plants of the Westinghouse company, was combined into one complete shipment.



PROGRESS IN STEELMAKING

LAKE water, filtered through a recently devised automatic strainer, is being used in waste-heat boilers which are equipped with small fire tubes. Tests conducted by engineers of the plant disclose that 86 to 91 per cent of the suspended matter entering the filter is removed which surpasses the efficiency obtained from the sand filters previously used.



INDICATION of the position of the upper rolls of a blooming mill now may be transmitted to the pulpit by a combination transmitting and receiving unit of the self-synchronous type.

♦ ♦ ♦

Increasing the pressure of the spray water from 550 to 1000 pounds per square inch has effected considerable economy at one steel mill. A smaller amount of water at high pressure will remove scale more effectively than a larger amount of low-pressure water, thus minimizing the cooling of the steel while in transit through the mill.

♦ ♦ ♦

Flow lines in open-hearth steel that has been stressed beyond the yield point heretofore could not be brought out by the Fry method of etching because the nitrogen content of the open-hearth steel does not come within the limit of 0.01 to 0.05 per cent. But according to a recent discovery this etching method now can be used with this grade of metal provided the steel first is nitrided. The recommended procedure is to cut the sections and expose the faces to be studied. After the specimen has been overstrained, it is subjected to the nitriding treatment and then etched to bring out the flow lines and strain patterns.

♦ ♦ ♦

Steel tubing with an interior diameter up to 30½ inches now is being produced in Germany by a pressed and drawn process. After forging, the billet at white heat is cupped in a hydraulic press, placed on a mandrel and pressed and drawn through a series of dies until the required length and thickness is obtained. Ingots weighing 20 tons have been processed in this manner.

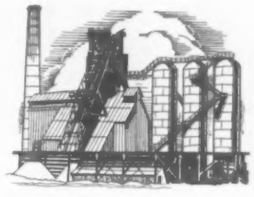
♦ ♦ ♦

Free carbon injected into the furnace atmosphere of a wire normalizing furnace where the coils are heated to around 1900 degrees Fahr. has effected control of the decarburization process. Diffusion combustion also has eliminated the danger of scaling the outer strands of the coils while in transit through the furnace.

RECONDITIONING the surface of billets, slabs and other semifinished steel now is being accomplished by a deseaming blowpipe designed with a large nozzle and a low velocity jet for oxygen. Vees or grooves, 2 inches wide and ⅜-inch or more deep, can be cut at the rate of 15 to 30 linear feet a minute.

♦ ♦ ♦

Application of light greases and heavy oils to various types of rolling mills and machinery is accomplished by a recently devised multifeed system. Branch lines are taken from the main line to each bearing, which is equipped with a mechanical measuring unit. The latter, set for feeding a predetermined quantity of grease, acts as a shut-off valve. Regardless of the amount of pressure in the line only that quantity for which the valve is set can pass to the bearing. Pressure is applied to the line only at the time the points are to be lubricated.



BLAST furnace gas is fired in a group of stoves serving a stack in the Mahoning valley by a recently improved burner built with a gas and air nozzle of the stationary type. A sliding sleeve, which fits over the nozzle, connects the burner with the hot blast stove. The outer end of the burner terminates in a variable-speed blower which supplies the required quantity of air for combustion. Gas is admitted to the rear of the burner through a cast-iron valve body. The interior of the latter is fitted with a ring of rubberized material which is compresed by a butterfly disk when in a closed position, thus affording a pressure-tight unit. Operating in conjunction with the burner is a newly developed combustion controller which maintains the excess oxygen in the chimney gas under 1 per cent. A small gas line delivers the static pressure of the gas from the burner to the combustion controller. Power required for operating this type burner on a bank of four stoves is only 57 per cent of that required by a constant-speed burner, representing a saving of $1000 annually based on a power cost of 1 cent.

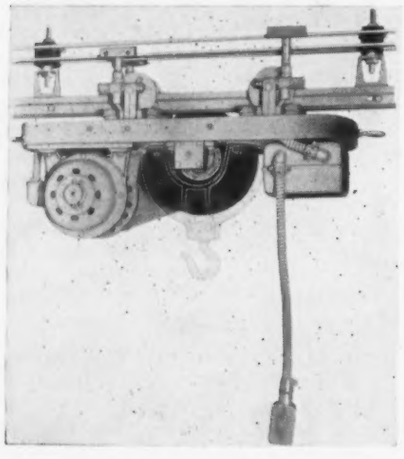
NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Monorail Trolley Drive Employs Tire

American MonoRail Co., 13107 Athens avenue, Cleveland, recently introduced a motor-driven monorail trolley employing a new type of drive. The primary feature embodies the use of a live rubber wheel to effect a friction drive on the bottom of the monorail section, as shown herewith. A high coefficient of friction between the tire and the steel rail provides a nonslipping grip.

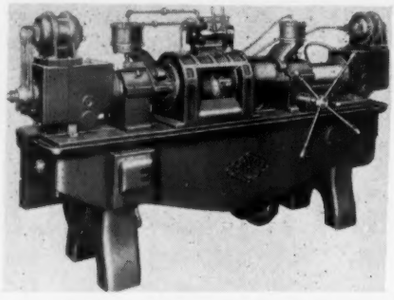
Rail wear is eliminated and control problems simplified by the new arrangement. Structural simplicity is affected by driving one wheel instead of the conventional two or four



American MonoRail trolley unit employs rubber wheel drive

wheels. Motor reducer units characterized by their compactness which is a distinct advantage in this installation, are employed. Where close control is required, variable and multispeed motors may be used, but on many applications, due to high traction between the wheel and rail, it is possible to use a simpler and generally preferred squirrel-cage type of motor with push button control.

The new drive permits the use of power travel on narrow flange rails which previously was impractical because of the limited tread width available, causing high flange and wheel wear. The wear now occurs only on the replaceable standard tire. Peening down of the rail flanges under driven wheel action also is eliminated. The overall efficiency of



Boring machine manufactured by City Machine & Tool Works

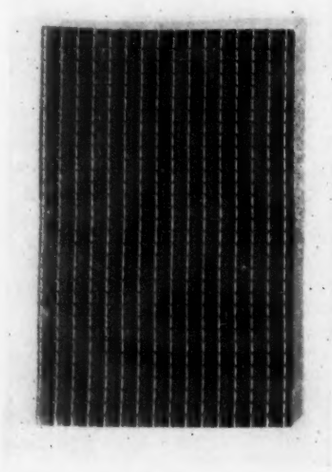
the drive is said to be such that with the current turned off of the drive motor the crane under full load may be pulled readily along the craneway by hand without disconnecting any drive parts.

◆

Unit Bores Work from Opposite Ends

City Machine & Tool Works, East Third at June, Dayton, O., has introduced a boring machine for the simultaneous boring of work from opposite ends. It has been built especially for boring all types of transmission gears but is equally efficient for single bearing gears and for double end bearings as applied in cluster gears and some idlers. Where employed for double end bearings the opposed spindles bore the pieces from opposite ends simultaneously. On single bearing gears two pieces of work are set up in the machine and both bored simultaneously.

The machine, shown at left, is equipped with Bolender gear chucks to provide for accurately boring the bearing in the gear concentric. The two chucks are carried in a housing in which they are located accurately in alignment with each other.

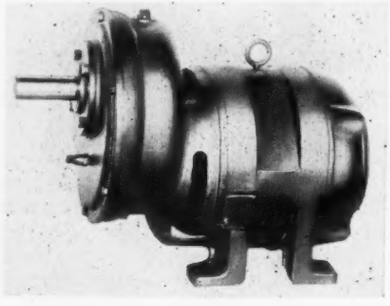


Houghton leather belting has a nonskid surface

◆

Introduces Line of Motorized Speed Reducers

D. O. James Mfg. Co., 1114 West Monroe street, Chicago, is manufacturing a new line of motorized speed reducers which consist of a speed reducer and motor combined as a single unit. Sizes available range from ½



Motorized speed reducer recently introduced by D. O. James Mfg. Co.

to 20 horsepower with a wide selection of ratios and speeds. Gears are of the continuous herringbone type mounted on antifriction bearings, running in a bath of oil, thus providing a compact drive.

◆

Nonskid Surface Is Feature Of Leather Belting

E. F. Houghton & Co., Third American and Somerset streets, Philadelphia, has introduced leather belting with a nonskid surface produced by pressing down or indenting part of the surface of the belt. The surface of the belt, shown at left, concentrates the tension between the belt and the pulley on the ribs of the surface without increasing the total tension of the belt, thus giving greater resistance to slippage without greater stress in the belt itself. The indentations in the surface of the belting permit trapped air to escape.

Markets Spottier, but Steel Rate Gains Point

Chicago and Cleveland Support 18 Per Cent Operations—New Ford In Production—Sheet and Wire Products Prices Cut—More Iron Moving

DUE to an increase in miscellaneous requirements at Chicago and in automotive releases at Cleveland the national rate of steel production expanded one point to 18 per cent in the week ended Jan. 21.

In all other districts the rise of the first half of January practically flattened out last week and a feeling of uncertainty spread, accentuated by the reductions in sheet and wire quotations and the apprehension that this price instability might prove contagious.

From the low of Christmas, steel operations have now snapped back six points. Miscellaneous demand is responsible for a large measure of this improvement, and while the trend in steel consumption undoubtedly still is upward, further appreciable gains await a broad, upward movement in general business.

The automotive industry, however, gives reasonable assurance of continued support. Chevrolet, leading producer, is easing a trifle and many manufacturers of lesser size, having stocked their dealers with new models, are curtailing. But Ford has put into production the new 112-inch wheelbase, radically streamlined senior eight, scheduling 5000 units a week.

The resulting Ford needs, especially for sheet and strip steel, promise to take up the slack and tide the industry over the next 45 to 60 days, by which time whatever railroad business is likely to develop for spring will mature.

The New York Central, Chesapeake & Ohio and Erie are three carriers expected to place rails, their combined requirements certain to exceed 100,000 tons. The Pennsylvania is inquiring for 5000 kegs of spikes. On 13,775 tons of rails for the New York board of transportation Bethlehem was the sole bidder.

The San Francisco-Oakland bridge promises a substantial lift to the structural market over the next 60 days. Bids go in Feb. 28 on 1900 tons of reinforcing bars, 150 tons of shapes and 225 tons of spikes and bolts for approach piers, and from that date to April 7 on a total of 117,000 tons of structurals, 5500 tons of reinforcing bars and 19,600 tons of cables.

Largest structural award of the past week is 2550 tons for a central heating plant at Washington, bringing the week's lettings up to 11,332 tons. Leading inquiry for reinforcing bars is 2500 tons for a treasury vault at Washington, a job which also requires 500 tons of plates. Other plate business includes 600 tons for vessel repairs at Chicago, 430 tons for barges at Pittsburgh, and 360 tons for seven Shell tanks.

For 14 tanks for the Pan-American Oil Co., at Baltimore, 4500 tons of plates will be required. Refinery projects for Baltimore and Houston, Tex., still indefinite, indicate further heavy plate demand. Two New York gas companies have placed 3000 tons of steel pipe. A Pittsburgh seamless tube mill has speeded up to complete export orders.

Raw materials are a trifle more steady than finished steel, both in demand and prices. The movement of pig iron generally continues to exceed December by a small margin. Scrap has lost a little of its buoyancy of last week, but a stronger tone is evident in some districts and advances more than wash out declines, putting the scrap index of STEEL up 4 cents to $6.25.

Excepting the hot-rolled annealed grade, the sheet market is increasingly demoralized, galvanized being off $2 per ton for the second consecutive week and the official levels on other classifications being generally disregarded. The closely allied strip market has thereby been weakened. With some large producers ceasing to hold an umbrella over the market, wire products are off $2 to $6. Here, too, allied lines are endangered. Plate prices are softer in the East. The net result is to lower the iron and steel composite of STEEL 28 cents to $28.55 and the finished steel composite 70 cents to $45.80.

Composite Market Averages

	Jan. 21	Jan. 14	One Month Ago Dec., 1932	Three Months Ago Oct., 1932	One Year Ago Jan., 1932	Ten Years Ago Jan., 1923
Iron and Steel Composite	$28.55	$28.83	$28.93	$29.32	$29.98	$41.17
Finished Steel Composite	45.80	46.50	46.74	47.64	47.28	59.01
Steelworks Scrap Composite	6.25	6.21	6.41	6.96	8.03	20.39

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars, and black pipe. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

COMPARATIVE PRICES OF IRON, STEEL AND COKE

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Jan. 21, 1932	Dec. 1932	Oct. 1932	Jan. 1932
Pig Iron				
Bessemer, del., Pittsburgh	$15.76	15.76	15.76	17.26
Basic, valley	14.00	14.00	14.00	15.00
Basic, eastern, del. eastern Pa.	13.50	13.50	13.60	16.00
No. 2 foundry, del. Pittsburgh	15.76	15.76	15.76	17.26
No. 2 foundry, Chicago	15.50	15.50	15.50	16.50
*Southern No. 2, Birmingham	11.00	11.00	11.00	12.00
**No. 2X, Virginia furnace	17.75	17.75	17.75	18.00
**No. 2X, Eastern, del., Phila.	13.76	13.76	14.16	15.76
Malleable, valley	14.50	14.50	14.50	16.00
Malleable, Chicago	15.50	15.50	15.50	16.50
Lake Superior charcoal, del. Chi.	23.04	23.04	23.04	22.29
Gray forge, del. Pittsburgh	15.63	15.63	15.63	16.63
Ferromanganese, del. Pittsburgh	73.24	73.24	73.24	79.85

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10. Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

Coke				
Connellsville, furnace, ovens	1.75	1.75	2.00	2.25
Connellsville, foundry, ovens	2.50	2.50	2.75	3.25
Semifinished Material				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	26.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	27.50
Billets, open-hearth, Pittsburgh	26.00	26.00	26.00	27.50
Wire rods, Pittsburgh	35.00	37.00	37.00	37.00

	Jan. 21, 1932	Dec. 1932	Oct. 1932	Jan. 1932
Finished Material				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.55
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.81
Iron bars, Chicago	1.65	1.65	1.65	1.60
Shapes, Pittsburgh	1.60	1.55	1.60	1.55
Shapes, Philadelphia	1.65	1.75	1.75	1.65
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.55
Tank plates, Philadelphia	1.64½	1.69½	1.79½	1.69½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.60	1.70	1.70	1.75
Sheets, No. 24, hot ann., Pitts.	2.00	2.10	2.10	2.20
Sheets, No. 24 galvan., Pitts.	2.65	2.85	2.80	2.80
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	2.00
Sheets, No. 24 hot ann., Chi.	2.25	2.25	2.25	2.45
Sheets, No. 24 galvan., Chi.	2.90	2.90	2.90	2.95
Plain wire, Pittsburgh	2.10	2.20	2.20	2.20
Wire nails, Pittsburgh	1.80	1.95	1.95	1.95
Tin plate, per base box, Pitts.	4.25	4.25	4.75	4.75
Scrap				
Heavy melting steel, Pitts.	$8.25	8.70	9.50	10.25
Heavy melting steel, eastern Pa.	6.50	6.60	7.25	7.50
Heavy melting steel, Chicago	5.25	5.45	6.00	7.25
No. 1 wrought, eastern Pa.	6.50	6.60	7.25	9.35
No. 1 wrought, Chicago	5.00	5.05	5.60	7.25
Rails for rolling, Chicago	7.75	8.25	8.00	10.30

Sheets

Market More Active, with Sharp Price Concessions—Automotive Specifications Well Sustained

SHEET PRICES, PAGE 29

Pittsburgh — Led by pronounced weakness in galvanized sheets, the market shows further unsettlement. Galvanized sheets have been sold as low as 2.60c and 2.55c for roofing purposes. The galvanized sheet market for containers, and other purposes requiring better quality, is now being quoted at 2.65c to 2.75c. Some business on a quality basis is being specified at 2.85c. Black sheets are fairly firm at 2.00c, minimum, although light cold rolled sheets have dropped another $2 and are quoted 2.30c to 2.40c. No further price developments have occurred in heavy hot rolled or blue annealed. Bookings in the past week rose somewhat in view of the willingness of all producers to meet the lower prices.

Boston—Sheet buying is light and prices are irregular. One builder of small tanks is taking a fair volume steadily.

New York—Except for hot rolled, sheet prices are down again. Galvanized sheets are moving generally at 2.65c to 2.75c, Pittsburgh, or 3.00c to 3.10c, delivered. No. 10 and No. 20 cold rolled, respectively, are down $2 to $3 a ton on light trading.

Philadelphia—Keen competition for autobody tonnage has forced another reduction in cold rolled sheets. Further weakness also is noted in galvanized and in No. 24 hot rolled annealed.

Cincinnati—Sheet orders chiefly for the automotive industry have shown a moderate improvement. Little business is being done on future requirements.

Cleveland—Sheet releases from General Motors and Chrysler continued to improve during the week, accounting for further gains in steel production here. A northern Ohio sheet mill on automotive requirements now is up to 50 to 60 per cent operations; in Cleveland the rate is about 35 per cent. Additional moderate size orders have been placed and production will be continued at present rates at least for the remainder of January. In anticipation of releases in the next 30 days on a large order for refrigerator shells placed here recently, approximately 300 tons of sheets have been purchased. Users of enameling stock are replenishing low inventories. Prices on all grades are easy, concessions of $2 to $6 a ton below the levels at first named for first quarter being general.

Chicago—While sheet orders are increasing slowly, tonnage in individual purchases is little changed, and betterment in total business so far this month is slight. Sheet mill operations average no higher than 15 per cent. Prices continue easy. Hot rolled annealed sheets usually are 2.20c, base, with galvanized sheets generally 2.85c.

St. Louis—New orders and specifications for sheets this month are well ahead of the volume in the comparable period in December, with improvement in galvanized material in the South. Automotive requirements are extremely light.

Carnegie Holds Banquet

Carnegie Steel Co.'s annual banquet was held at the Duquesne club, Pittsburgh, Jan. 20, with I. Lamont Hughes, president of Carnegie, as toastmaster, and William A. Irvin, president, United States Steel Corp., and Myron C. Taylor, chairman of the finance committee, attending. W. J. Filbert, vice chairman of the finance committee, and Charles L. Wood, vice president of the Corporation, were also present, among other Carnegie officials.

CURRENT FINISHED STEEL PRICES

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.45c to 1.55c
*Gary, Ind. Harbor, base	1.55c to 1.65c
*Chicago, delivered	1.60c to 1.70c
New York, delivered	1.80c to 1.90c
Birmingham, base	1.70c
Philadelphia, delivered	1.76c to 1.86c

BLUE ANNEALED No. 9-10

Pittsburgh, base	1.60c to 1.70c
*Chicago, district mills	1.70c to 1.80c
*Chicago, delivered	1.75c to 1.85c
Philadelphia, delivered	1.91c to 2.01c
New York, delivered	1.95c to 2.05c
St. Louis, delivered	2.04c
Birmingham, base	1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED No. 24

Pittsburgh, base	2.00c to 2.20c
*Gary, Ind. Harbor, base	2.20c
*Chicago, delivered	2.25c
New York, delivered	2.35c to 2.45c
Philadelphia, delivered	2.31c to 2.41c
Birmingham, base	2.35c
St. Louis, delivered	2.54c
San Francisco, c.i.f.	2.85c
Detroit, delivered	2.28½c

GALVANIZED No. 24

*Pittsburgh, base	2.65c to 2.85c
*Gary, Ind. Harbor, base	2.85c
*Chicago, delivered	2.90c
*Philadelphia, delivered	2.96c to 3.06c
*New York, delivered	3.00c to 3.10c
Birmingham, base	3.00c
St. Louis, delivered	3.19c
San Francisco, c.i.f.	3.50c

AUTOBODY No. 20

*Pittsburgh, base	2.45c to 2.55c

FURNITURE

Pittsburgh, No. 10 heavy	2.40c to 2.50c
Pittsburgh, No. 20 light	2.90c to 3.00c

TIN MILL BLACK No. 28

Pittsburgh, base	2.30c
Gary, base	2.40c
St. Louis, delivered	2.67½c

HEAVY COLD ROLLED No. 10

Pittsburgh, base	1.90c to 2.00c
Gary, Ind. Harbor, base	2.10c
Chicago, delivered	2.15c
*Philadelphia, delivered	2.11c to 2.21c
*New York, delivered	2.20c to 2.30c

COLD ROLLED No. 20

*Pittsburgh, base	2.30c to 2.40c
*Gary, Ind. Harbor, base	2.50c to 2.60c
*Chicago, delivered	2.55c to 2.65c
*Philadelphia, delivered	2.56c to 2.66c
*New York, delivered	2.70c to 2.80c

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

F.o.b. mills, 100 lb. keg

*Standard wire nails	$1.80
*Cement coated nails	1.80
*Galvanized nails	3.30

(Per pound)

*Polished staples	2.50c
*Galvanized staples	2.75c
*Barbed wire, gal.	2.30c
*Annealed fence wire	2.25c
*Galvanized wire	2.60c
*Woven wire fencing (9-11 gage)	$50.00
*(12½ gage and lighter)	$55.00

(To Manufacturing Trade)

*Plain wire, 6-9 gage	2.10c
*Spring wire	3.10c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
*New York, delivered	1.70c to 1.90c
*Philadelphia, del.	1.59½c to 1.79½c
Boston, delivered	1.92c to 2.02c
Buffalo, delivered	1.85½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Birmingham, Ala. base	1.75c
*Coatesville, Pa., base	1.50c to 1.70c
Pacific Coast, c.i.f.	2.00c
St. Louis, delivered	1.94c

Structural Shapes

Pittsburgh, base	1.60c
*Philadelphia, delivered	1.65c to 1.75c
New York, delivered	1.87c
Boston, delivered	2.00½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, delivered	1.91c
New York, delivered	1.95c
Boston, delivered	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
Eastern mills	1.35c

IRON

Chicago, base	1.60c to 1.65c
New York, delivered	1.85c to 1.90c
Philadelphia, delivered	1.81c to 1.86c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts. billet cut lengths	1.65c
Pitts., stock lengths mill	1.50c
Chicago, billet	1.50c to 1.60c
Chicago, rail steel	1.20c to 1.30c
Philadelphia, cut lengths	1.81c to 1.96c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

Base Pittsburgh for one size, shape and grade for shipment at one time to one destination

10,000 to 19,999 pounds	1.70c
20,000 to 59,999 pounds	1.65c
60,000 to 99,999 pounds	1.60c
100,000 pounds and over	1.57½c

Chicago, Cleveland, Buffalo 5c higher; Detroit, 20c; eastern Michigan 25c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold Strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Tin and Terne Plate

Per 100-pound box, Pittsburgh

Tin plate, coke base, cont.	$4.25
Tin plate, coke base, stock	3.75
Long ternes, 24 unassorted	2.70c to 2.80c

Gary, Ind., base 10 cents higher

Alloy Steel

Hot rolled, f.o.b. Pittsburgh, Buffalo, Chicago and Massillon, O. Base, 2.45c to 2.65c. Differentials to various classes of consumers

S.A.E.	Alloy Diff.	4600 .20 to .30 Mo. 1.25-1.75 Ni. 1.05
2000	0.25	5100 .80 - 1.10
2100	0.55	Cr. 0.45
2300	1.50	5100 Cr.
2500	2.25	spring 0.20
3100	0.55	6100 bars 1.20
3200	1.35	6100 Spring 0.95
3300	3.30	Cr., Ni., Van. 1.50
3400	3.20	Carbon van. 0.95
4100 .15 to .25 Mo	0.50	9250 (flats) 0.25
		9250 (rds., sq.) 0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16 in. wide Pitts.	1.45c
Do., Chicago	1.55c
* Do., del. Philadelphia	1.76c
* Do., del. New York	1.80c
Cooperage hoop, Pitts.	1.55c to 1.60c
Do., Chicago	1.65c to 1.70c
*Cold roll, strip, Pitts., Cleve.	1.90c to 2.00c
Worcester, 3 tons or over	2.20c

Rivets, Wrought Washers

Struc., c.l., Pitts-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. and smaller, Pitts., Chicago, Cleveland	70, 10 and 5 off
Washers, c.l., Pitts. dist.	$6.50 to 6.75 off
*Do., Chicago district	7.00 to 6.75 off

Rails, Track Material

Standard rails, mill	$40.00
Relaying rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	23.00 to 25.00
Light rails, 25-45, mills	$30.00
Light rails, Chicago	$32.00
Angle bars, mills	2.55c
Spikes, railroad, mills	2.40c
Spikes, boat, barge, Pitts.	2.65c
Track bolts, Chicago	3.50c
do., standard, jobbers	73 off list
Tie plates, Pittsburgh	$35.00
Tie plates, Chicago	$35.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to Dec. 1, 1932, lists.

CARRIAGE BOLTS

All sizes, cut thread 75 off

Rolled thread ⅜ x 6 and smaller take lower list.

Eagle list 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts 75 off

Tire bolts 60 and 10 off

Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.

Rolled thread machine bolts, ⅜ x 6 and smaller take lower list.

NUTS

Semifinished 75 off

HEXAGON CAP SCREWS

Milled 80-25 off

Upset 1 in. diam. and smaller 80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller 75-10-10 off

Headless set screws 75-10 off

Upset, larger than 1 in. 75-10 off

Cut Nails, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do., less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Steel sheet piling, Pitts.	1.90c

Bars

Better Demand Develops in West, with Market Generally Slow—Prices Hold Well

BAR PRICES, PAGE 29

Chicago—Soft steel bars are more active, orders being better diversified and occasionally are larger. Incoming business is slightly heavier than during preceding weeks and for some interests has been considerably better than the average of last year. Automotive requirements still lead, although miscellaneous consumers are more active. Specifications from farm implement manufacturers continue to lag, and only moderate expectations of increased tonnage are held. The 1.70c, Chicago price is fairly steady.

Boston—Commercial steel bar demand is dull, with prices unchanged. Buying is in small lots, with larger consumers taking little. Bolt and nut makers are inactive.

New York—Steadiness dominates the commercial bar market, with 1.60c, Pittsburgh, the ruling price. Common iron bars are 1.50c, Pittsburgh, and quiet.

Philadelphia — Commercial steel bars are unchanged at 1.60c, Pittsburgh, notwithstanding weakness in plates and shapes. Buying is spotty. Action on a ferry boat for the Virginia Ferry Corp., requiring a fair tonnage of bars, may not be taken for some time. Common iron bars are nominal at around 1.50c, Pittsburgh.

Pittsburgh—Merchant steel bars are steady at 1.60c, Pittsburgh, and although little business is being done usual concessions are being held to a uniform $2 per ton basis. Specifications are coming regularly on alloy bar contracts, which have been completed for first quarter, and the market is firm at 2.45c to 2.65c. Bar mill production here last week was less than two weeks ago, one important mill remaining closed and that of an independent being temporarily shut down for several days.

Cleveland — Further gains are noted by some producers in the volume of miscellaneous steel bar bookings, in small lots. Demand from the automotive industry is steady, but railroad buying has failed to improve materially. Commercial steel bars are firm at 1.65c, base, Cleveland.

Tin Plate Firm; Users Slow to Place Contracts

Tin Plate Prices, Page 29

Pittsburgh—Tin mill operations average 45 per cent, and some days run as high as 50 per cent. The price situation, with $4.25 for tin plate, and 2.30c for tin mill black sheets, is the firmest in some years, and by some this is ascribed as the reason for slowness on the part of customers to contract.

Cold-Finished Trend Shows Little Increase

Cold Finished Prices, Page 29

Pittsburgh—Mill specifications for cold-finished steel bars are following closely the December trend. Automotive buyers, themselves displaying more activity this month, are ordering only in small lots. Miscellaneous buyers of cold-finished bars are showing no more activity. The base price is unchanged at 1.70c, Pittsburgh, with usual differentials for quantity observed.

Plates

Tank Work More Active—4500 Tons Required for Pan-American Project—1550 for Barges

PLATE PRICES, PAGE 29

Chicago—Tank work shows a moderate gain. Shell Petroleum Corp. has placed seven oil storage tanks, requiring 360 tons, for installation at East Chicago, Ind., and Arkansas City, Kans. An order for a small oil carrying river barge has been booked and several others are on inquiry. Opening of the Illinois waterway this spring is expected to stimulate barge building in this district. About 600 tons of plates are pending for lake boat repair work. Plates usually are 1.70c, Chicago.

Boston—Plate buying is in small lots, with little gain in volume. Larger consumers have small backlogs. Railroads are frequently ordering 20 to 30 tons for repairs. The Enfield-Ware dam will take a fair amount, but the method of construction will eliminate heavy tonnage. Prices are easy on attractive lots.

New York—Better miscellaneous buying is noted. Approximately 500 tons of plates will be required for a vault for the treasury department in Washington, bids Feb. 2. About 4500 tons of tank plates will be required for a $500,000 Baltimore development for the Pan-American Oil Co., Philadelphia. Prospects for further oil refinery construction are indicated in a recent statement by Wirt Franklin, president of Independent Petroleum association, Washington, to the effect that $13,500,000 will be spent in the next few months on work at Baltimore and probably at Houston, Tex. Plate prices here are easy.

Philadelphia—Plate buying is featureless and prices continue unsettled. While the 1.70c, Coatesville, price has not entirely disappeared, the usual range on carlots is 1.50c to 1.60c, with concessions on attractive tonnages. The Reading Co. is understood to be inquiring for additional tonnage for car repair. Early action is not expected on the 750 tons of plates for the Virginia Ferry Corp.

Pittsburgh—Midland Barge Co., Midland, Pa., having taken a contract for three oil barges for the Chicago federal engineers, will require 430 tons of plates. Bids go in this week on 40 pontoons for Vicksburg, Miss., delivery. Dravo Contracting Co. is low bidder at $3080 for two needle flats for Huntington, W. Va., requiring 15 tons each. The base price of 1.60c is firm at present, with the only exception in the districts east of here where mills must meet eastern competition.

Cleveland—An inquiry is current for 1000 to 1500 tons of plates for work on the Hoover dam, Boulder City, Nev. Requirements for tank and boiler fabrication in this district are light. The demand for gasoline service station tanks, which up to 1932 was one of the largest items of the fabricators' business, has virtually disappeared, and builders believe that the future in this work will be mainly for replacement. Such tanks as have been ordered are of smaller capacity than formerly, owing to the fact that stations sell several grades of gasoline. This city is placing an order for a carload of plates for a west-side sewer job. The market generally is 1.60c for small occasional lots.

Contracts Placed

850 tons, for 60-inch steel welded water pipe for Vancouver, B. C., to Dominion Bridge Co., Vancouver, B. C.

430 tons, three oil barges for Chicago federal engineers, to Midland Barge Co., Midland, Pa.
350 tons, agitator bridge, for United States engineer, Vicksburg, Miss., to Midland Barge Co., Midland, Pa.
100 tons, for welded pipe, specification 2960, Los Angeles, to Western Pipe & Steel Co., Los Angeles.

Contracts Pending

4500 tons, fourteen 30,000-gallon tanks for Pan-American Oil Co., Philadelphia.
1550 tons, ten 175-foot coal barges for West Kentucky Coal Co., Sturgis, Ky.
1500 tons, including 200 tons for eight welded plate cylinder gates, Hoover dam, Boulder City, Nev.; bids Jan. 27.
747 tons, medium black, floor plate and galvanized, mainly former, navy, east and west yards, Central Iron & Steel Co., Harrisburg, Pa., and Worth Steel Co., Claymont, Del., low on bulk of tonnage, opening Jan. 10. Low bidders on several classes also include Alan Wood Steel Co., Conshohocken, Pa., and Youngstown Sheet & Tube Co., Youngstown, O.
500 tons, 5/16 and ⅜-inch plates, vault treasury department, Washington; bids Feb. 2.
360 tons, seven oil storage tanks, for Shell Petroleum Corp.; five to be built at East Chicago, Ind., two at Arkansas City, Kans.
300 tons, central heating plant, Washington.

Wire Products Cut $2 to $6; Trading Continues Light

Wire Prices, Page 29

Pittsburgh—Prices on the entire wire schedule have been reduced $2 to $6 per ton, effective early last week. Wire nails are now quoted $1.80, plain wire 2.10c and wire rods $35, Pittsburgh or Cleveland. Woven wire fencing, No. 9-11 gage, is now $50 per ton, galvanized wire 2.60c, annealed fence wire 2.25c and galvanized barbed wire 2.30c. Polished and galvanized staples have been reduced $3 a ton.

Worcester, Mass.—Plain round wire has been reduced $2 per ton to 2.10c, Worcester. Other wire products show evident weakness. This situation follows a long period of steady prices.

New York—The official reduction in wire nails to $1.80c, Pittsburgh, follows concessions here in this product for some time. The changes in most of the other principal items, however, came more as a reflection of weakness in the Middle West than to any unsettlement in this district.

Cleveland—Wire interests here are following the lead taken by outside producers and are meeting the competition at $2 to $6 a ton under the schedules recently quoted. Weakness was first noted on some of the finer gages of wire in adjacent Ohio territory; and in western Ohio, as noted a week ago, some quotations of 2.10c on plain wire were reported by consumers. Demand has been fairly active from a miscellaneous class of buyers.

It is understood new extra lists are to be issued shortly in accordance with the revised base prices.

Chicago—Prices of wire products have dropped sharply as the result of general recognition of recent concessions. Although no change has been made in official schedules the market generally is around $2 to $5 a ton below these levels, with wire nails $1.85 in carloads and plain wire 2.15c. Business has experienced a small seasonal increase so far this month but has not been stimulated by weakness in quotations.

Railroads

Mills Gain Little Tonnage as Rail and Car Needs Are Held At Low Mark

TRACK MATERIAL PRICES, PAGE 29

New York—Bethlehem Steel Co. was the only bidder on 7095 tons of rails for the board of transportation, bidding 1.95c per pound on the 6680 tons of main rails and 2.48c per pound on the 415 tons of guard rails. This company was also low on approximately 200,000 tie plates, with a bid of $62,544.90; on spikes, with $27,740.55; and on frogs and switches, with $59,290. The Republic Steel Corp. was low on approximately 85,000 assorted bolts and nuts, with a bid of $11,360.63, and the Rail Joint Co. on joint bars, with $39,744.49. The Eastern Malleable Iron Co. was low on approximately 39,000 small castings, with a bid of $7032.56.

Approximately 7800 tons of steel will be required for power reverse gears to be installed in some 31,600 locomotives under a recent interstate commerce commission ruling. However, as railroads have until Jan. 1, 1937, to make installations, the trade opinion is that little will be done for some time owing to the financial condition of the carriers. Each unit and accessories require about 500 pounds of steel.

Boston—New England railroad shops, most on short time on repairs, are buying steel in small lots and are not covering future requirements. Boston & Maine railroad has placed several carloads of spikes.

Philadelphia — Bids have been opened by the Pennsylvania railroad on 5000 kegs of spikes. This material, it is said, will be used in the laying of rails between New York and Paoli, Pa., the latter about 20 miles west of Philadelphia, and recently named as the point where motive power on through trains for the West will be changed from electricity to steam. The rails required are on hand, it is said. The Reading Co. is inquiring for additional tonnage for its car repair program.

Buffalo—Bethlehem rail mill here has been in operation the past week, on an order for the Lackawanna railroad. This is the first rail production here in several months.

Pittsburgh—Ordinarily one of the year's best months in point of railroad specifications for steel products, January has shown little change from the low demand of the last quarter of 1932. Practically none of the few fastening inquiries noted since the first of the year has come to local producers and there have been no recent rail releases. Hopes are now contingent on the release of rails by an important eastern road the latter part of this month but a rolling would not get under way until some time in February at the earliest. The Pennsylvania railroad has made no disposition of its more or less nominal inquiry for spikes. Prices appear fairly well observed and tie plates are quoted at $35, angle bars 2.55c and spikes 2.40c, mill base. Standard open-hearth rails continue $40 per ton.

Cleveland—Railroads with headquarters here will place orders for approximately 85,000 tons of rails for delivery this year, in the aggregate about 25 per cent less than they purchased for 1932. However, most of this tonnage will not be awarded before March or April. The inquiry for 1000 tons of screw spikes issued recently by the Chesapeake & Ohio has been withdrawn and this business probably will not be closed until rails are purchased. Repair shops have not increased operating rates, buying small miscellaneous lots of steel as required.

Chicago—Little new business in rails and fastenings is in prospect and releases against orders, while fairly active, involve only small lots. Repair work has not been sufficient to stimulate materially demand for bars, plates and other steel products, while demand for repair parts also is slow. Freight car inquiry is absent and action on the few projects pending is deferred.

Structural Shapes

Bids to Be Taken Shortly on 117,000 Tons for San Francisco-Oakland Bridge—Week's Awards Are Heavier, Led by 2500 Tons for Washington Heating Plant

STRUCTURAL SHAPE PRICES, PAGE 29

San Francisco — Approximately 117,000 tons of shapes, 5500 tons of concrete bars, 19,600 tons of steel cable and fastenings, and other steel requirements have been announced, with dates for bids, for the San Francisco-Oakland bay bridge. Bids Feb. 28 for the first unit, call for 1900 tons of bars; 150 tons of shapes; 225 tons of timber fastenings. Bids about March 7 will be taken on 18,700 tons of cable, 830 tons of cable fastenings, 75 tons of high tensile bolts, and 226,000 feet of suspender rope. On or about April 2 bids will be taken on 1840 tons of bars, 1280 tons of shapes and 225 tons of timber fastenings. The bids for April 7 call for 24,985 tons of structural steel for the towers in the west bay superstructure; and for the suspended structure, 51,700 tons of structural steel and 1100 tons of concrete bars. Bids will be taken shortly thereafter on 51,700 tons of shapes and 650 tons of bars for the east bay superstructure. Two additional contracts which will require a large, though unestimated steel tonnage, will be scheduled later.

Boston—About 550 tons of piling has been placed, mainly for a bulkhead, lighthouse bureau, Chelsea, Mass. A larger number of small public works projects are pending. The largest job ahead, the parcel post building, Boston, will take about 2500 tons. Plain material is steadier at 1.60c, Pittsburgh.

New York—Structural steel lettings are slightly heavier, contracts being placed for state bridges and hospital buildings. For bridges and grade elimination, Staten Island, N. Y., 700 tons have been placed. New inquiry is light, but approximately 40,000 tons are active in the district.

Philadelphia—Dullness in the local structural market has emphasized weakness in plain material. While wide flange sections are unchanged at 1.70c, nearest mill, standard shapes now are moving usually at 1.60c. No sizable awards were placed during the week.

Pittsburgh—Few new structural jobs are coming up for figures, and fabricators here report prospects diminished ,even for state and federal construction. Although fabricated prices are weak, plain material is held at 1.60c, Pittsburgh.

Cleveland—Three hundred tons of miscellaneous small structural steel parts for the Cleveland postoffice have been divided among three interests; and for the state hospital at Willard, N. Y., 210 tons, including 60 tons of concrete bars, have been awarded by a Cleveland contractor. A commercial project requiring 150 tons is being figured.

Chicago — Miscellaneous bridge awards require about 2400 tons of shapes. Inquiry continues to lag, and pending work is declining. About 2300 tons of piling for a Kentucky river dam is expected to be placed within the next few weeks.

Contracts Placed

2550 tons, central heating plant, Washington, to Belmont Iron Works, Philadelphia; through Rust Engineering Co., Pittsburgh.

700 tons, bridges, Dongan Hills, Staten Island, N. Y., Baltimore & Ohio railroad, to American Bridge Co.

650 tons, municipal viaduct, Philadelphia, to Belmont Iron Works, Philadelphia.

625 tons, state highway bridge, Callicoon, N. Y., to American Bridge Co., Pittsburgh.

575 tons, highway bridge, Greer county, Oklahoma, to J. B. Klein Iron Foundry Co., Oklahoma City, Okla.

550 tons, state bridges, Cattaraugus and Genesee counties, New York, to Lackawanna Steel Construction Corp., Buffalo.

550 tons, bridge, Okemah, Okla., to Kansas City Structural Steel Co., Kansas City, Mo.

500 tons, bridge, Falls City, Nebr., to Omaha Steel Works, Omaha, Nebr.

480 tons, highway bridges, Chester and Red Bud, Ill., to Vincennes Bridge Co., Vincennes, Ind.

470 tons, state armory, Binghamton, N. Y., to Pittsburgh Bridge & Iron Co., Pittsburgh, Charles Shutrump & Sons Co., Youngstown, O., general contractor. Previously reported as 350 tons.

450 tons, two state bridges, near Meeker, Okla., to J. B. Klein Iron & Foundry Co., Oklahoma City, Okla.; J. W. Hopper, Oklahoma City, general contractor.

435 tons, piling, bulkhead, lighthouse bureau, Chelsea, Mass., to Kalman Steel Corp., Bethlehem, Pa. Blakeslee-Rollins Corp., Boston, contractor.

313 tons, lock gates, locks No. 2 and No. 3, Allegheny river, to Dravo Contracting Co., Pittsburgh, through Vang Construction Co., Pittsburgh.

300 tons, 5-story building for United States forest service, Ogden, Utah, to unnamed interest; Murch Bros. Construction Co., St. Louis, contractor.

300 tons, group of New York state bridges, to Lackawanna Steel Construction Corp., Buffalo.

300 tons state school buildings, Rome, N. Y., to Pittsburgh Bridge & Iron Co., Pittsburgh; Charles Shutrump & Sons Co., Youngstown, O., general contractor.

300 tons, bridge, Montana, to Minneapolis-Moline Power Implement Co., Minneapolis.

220 tons, state school, Passaic, N. J., to Bethlehem Fabricators Inc., Bethlehem, Pa.

210 tons, including 60 tons of concrete bars; state hospital, Willard N. Y.; 150 tons of shapes to McClintic-Marshall Corp., and bars to Kalman Steel Corp., Bethlehem, Pa. Crowell & Little Construction Co., Cleveland, contractors.

200 tons, heaters, Sinclair refinery, Fort Worth, Tex., to Lackawanna Steel Construction Corp., Buffalo.

200 tons, bridge, Knox county, Illinois, to Midland Structural Steel Co., Chicago.

195 tons, bridge, New York Central railroad, Poughkeepsie, N. Y., to American Bridge Co., Pittsburgh.

175 tons, state highway bridge, Columbia, N. J., to McClintic-Marshall Corp., Bethlehem, Pa.

160 tons, lintels, department of justice building, Washington, to Belmont Iron Works, Philadelphia.

159 tons, 105 tons of shapes and 54 tons of bars, infirmary building and tunnels, state school, Newark, N. J., to Genesee Bridge Co., Rochester, N. Y.; M. Iuppa, Rochester, N. Y., general contractor.

150 tons, garage, Springfield, Miss., to Mississippi Valley Structural Steel Co., Decatur, Ill.

150 tons, dam gates, Springfield, Ill., to Mississippi Valley Structural Steel Co., Decatur, Ill.

125 tons, bridge, Wisconsin Dells, Wis., to Worden-Allen Co., Milwaukee.

120 tons, piling, bridges, Falmouth, Me., and Concord, N. H., to Jones & Laughlin Steel Corp., Pittsburgh.

100 tons, river-rail landing and warehouse, Glassport, Pa., for American Barge Line, to McClintic-Marshall Corp., Bethlehem, Pa.

Awards Compared

	Tons
Awards, week ended Jan. 21	**11,332**
Awards, week ended Jan. 14	**6,283**
Awards, week ended Jan. 7	**7,965**
Awards this week in 1932	**19,782**
Av. weekly awards, 1932	**14,285**
Av. weekly awards, 1933	**8,526**
Av. weekly awards, Dec.	**31,804**
Total awards to date, 1932	**49,222**
Total awards to date, 1933	**25,580**

Contracts Pending

117,000 tons, approximately, San Francisco-Oakland bay bridge; dates for bids and details are given in the San Francisco report, page 32.

2500 tons, estimated, main and other

buildings, United States narcotic farm, Lexington, Ky.; Great Lakes Construction Co., Chicago, low.

735 tons, ward for General hospital, San Francisco; new bids Jan. 25.

610 tons, bridges, Clarksville, Va.

600 tons, highway bridge over Dan and Staunton rivers, Clarksville, Va.

420 tons, grade separations at Sunset and Silver Lake boulevards, Los Angeles; Consolidated Steel Corp., Los Angeles, low.

400 tons to 500 tons, piling cofferdam, Norfolk, Va., navy yard; Temple Construction Corp., 21 East 40th street, New York, low.

400 tons, lock and dam No. 1, Barren river, Kentucky.

343 tons, five Pennsylvania state bridges; bids Feb. 10.

300 tons, postoffice, Charlotte, N. C.

200 tons, Wisconsin-Michigan interstate bridge; Lackawanna Steel Construction Corp., Buffalo, low.

150 tons, postoffice, Fort Lauderdale, Fla.; Watt & Sinclair of Florida Inc., Palm Beach, Fla., low.

100 tons, eight monorail electric traveling hoists and trolley beams, specification 7170, Sunnyvale, Calif., dirigible base. Bids Jan. 25 in Washington.

Unstated tonnage, waterworks improvement, Quincy, Fla. R. F. C. to purchase $16,000 bonds.

Concrete Bars

Market Slower, with Fewer New Public Projects, and Action on Former Ones Deferred—5500 Tons Required For San Francisco-Oakland Bay Bridge

REINFORCING BAR PRICES, PAGE 29

Chicago—Concrete bar awards are heavier but the lack of improvement in inquiry gives a rather unfavorable outlook. Most of the general contracts for Illinois road work have been distributed, and bar orders involving around 500 tons also have been placed. For a river dam at Canton, Mo., 250 tons have been booked. Early action is expected on 630 tons for a dam at Springfield, Ill. Prices continue easy, concessions being granted on larger lots from the nominal market of 1.50c to 1.60c for billet bars and 1.20c to 1.30c for rail steel.

Boston — While a good volume pends for public work contractor-buyers are slow to close. Mesh is easy, but billet bars and rail steel, although untested on large tonnages, are holding fairly well. Close to 800 tons for the Ware-Enfield, Mass., caisson core wall, dam project, are to be placed.

New York—For state building projects and highway construction close to 1000 tons of concrete bars have been placed. New inquiry has slackened and prices are shaded on the more attractive tonnages. The federal building will take a heavy volume on floor mesh.

Philadelphia—Approximately 2500 tons of reinforcing steel will be required for a vault for the treasury department in Washington, on which bids will be opened Feb. 2. Various alternates are asked including one involving the use of considerable expanded metal. Billet steel, in cut lengths, is holdng at 1.50c to 1.65c, Pittsburgh, although sizable orders are going at substantially less.

Pittsburgh—Reinforcing bar projects are fewer and require less tonnage than before the first of the year. The price of 1.50c, Pittsburgh, for new billet steel in mill lengths is being held in this district, with $3 and up for cut lengths. Concessions are restricted to the larger jobs.

Cleveland—Ohio state road work has slowed up, with bars for several small projects on which general contracts were awarded in December still in abeyance. In Michigan it is understood state road funds are to be diverted to relief. Cleveland is projecting plans for a sewer extension in Nine-mile creek, which may require several hundred tons. Billet steel bars, mill lengths, generally are 1.40c to 1.50c.

San Francisco — Bids will be taken on approximately 5500 tons of concrete bars for the San Francisco-Oakland bay bridge, on the dates and for the purposes as given in the San Francisco report, page 32.

Contracts Placed

550 tons, cell blocks and other work, state reformatory, Elmira, N. Y., to Milton Mfg. Co., Milton, Pa., W. F. Hendrich Co. Inc., Cleveland, contractor.

500 tons, Illinois road work, to various distributors.

325 tons, bridges, Foster avenue, Chicago, to Inland Steel Co., Chicago.

250 tons, dam, Canton, Mo., to Inland Steel Co., Chicago.

210 tons, highway, Sullivan county, New York, to National Bridge Works, Long Island City, N. Y.

164 tons, state highway work in Clark and Pershing counties, Nevada, to unnamed interest.

157 tons, state highway work in Monterey county, California, to unnamed interest.

157 tons, state highway work in Los Angeles county, California, to unnamed interest.

150 tons, postoffice, Oak Park, Ill., to Inland Steel Co., Chicago.

125 tons, two state bridges, near Meeker, Okla., to J. B. Klein Iron & Foundry Co., Oklahoma City, Okla.; J. W. Hopper, Oklahoma City, general contractor.

117 tons, bridge over San Gabriel river, Long Beach, Calif., to unnamed interest.

100 tons, New York state building, Saratoga Springs, N. Y., to Joseph T. Ryerson & Son Inc., Chicago.

100 tons, quay wall at naval operating base, San Diego, Calif., to unnamed interest.

100 tons, state bridge San Bernardino county California, to unnamed interest.

100 tons state highway work in six counties in Wyoming, to unnamed interest.

100 tons, state road work, near Bethlehem, Pa., awarded through J. H. Swanger, Lancaster, Pa., to Kalman Steel Corp., Bethlehem.

Contracts Pending

5500 tons, approximately, San Francisco-Oakland bay bridge; dates for bids and details given in the San Francisco report under structural shapes, page 32.

2500 tons, vault, treasury department, Washington; bids Feb. 2 as previously noted; one alternate calls for expanded metal.

200 tons, ward for General hospital, San Francisco; bids Jan. 25.

161 tons, state roadwork, Clay county, Arkansas; bids Jan. 19.

100 tons, for trash racks, Pine Canyon dam, Pasadena, Calif.; bids Jan. 31.

Unstated tonnage, Reeves county, Texas, water improvement district No. 1, Balmorhea, Tex. R. F. C. to purchase $40,000 bonds.

Awards Compared

	Tons
Awards, week ended Jan. 21	**3,205**
Awards, week ended Jan. 14	**3,819**
Awards, week ended Jan. 7..	**6,867**
Awards, this week, 1932.....	**6,002**
Av. weekly awards, 1932....	**3,920**
Av. weekly awards, 1933.....	**4,623**
Av. weekly awards, Dec.	**2,370**
Total awards to date, 1932....	**22,975**
Total awards to date, 1933....	**13,891**

Bolt, Nut Buying Shows No Change from December

Bolt, Nut, Rivet Prices, Page 29

Pittsburgh—Bolt and nut specifications show no improvement and bookings of some interests are below first half of December. In general, orders show no deviation from a month ago. Prices continue at 75 off list with large rivets fairly firm at 2.25c, Pittsburgh.

Chicago—While changes in specifications for bolts, nuts and rivets are slight the tendency is upward, prin-

cipally as a result of sustained demand from the automotive industry, the farm implement industry still providing little business. Prices are steady and unchanged.

New York—On approximately 85,000 pieces for the local board of transportation, Republic Steel Corp. was low recently, with a bid of $11,360.63. Bolt and nut business in general remains quiet, with 75 off list and 2.25c, Pittsburgh, the prevailing prices on bolts and rivets, respectively.

Cleveland—A good diverse demand for nuts and bolts is developed from the general manufacturing trade. Railroads have increased purchases slightly, while specifications from the automotive industry are steady. No pressure on nut and bolt prices has yet developed from the reduction in wire and wire rod prices, though it is anticipated as an unsetting influence. Many large consumers have contracted for first quarter at firm prices.

Obituaries

(*Concluded from Page* 10)

five years service with that company, to become associate editor of *The Foundry*, Cleveland. In 1912 he became connected with the Titanium Alloy Mfg. Co., Niagara Falls, N. Y., and at the same time maintained his connection with *The Foundry* as a contributing editor. Five years later he resigned from the Titanium company to establish his own consulting practice, with headquarters at Buffalo. Mr. Vickers is the author of "Metals and Their Alloys," a volume recognized as an authority on nonferrous metallurgy.

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Joseph Mashek, 53, for many years engineering executive of the Miehle Printing Press & Mfg. Co., New York, died at Kewaunee, Wis., Jan. 7.

□ □ □

Walter Erni, 57, formerly production executive of the Prime Mfg. Co., Milwaukee, manufacturing locomotive accessories, died at Palmyra, Wis., Jan. 10. He retired in 1930.

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Ellsworth E. Clark, 60, foreman of the design metal stampings department of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., died Dec. 5, at his home in Edgewood, Pa. He had been associated with various Westinghouse enterprises for 22 years.

□ □ □

Emmet H. Birney, 60, who for ten years was president of the Peerless Drawn Steel Co., Massillon, O., which he organized, died at Cleveland, Jan. 15. When the Peerless company was acquired by the Union Drawn Steel Co. five years ago, Mr. Birney organized and became president of the Metal Spray Engineering Co., Cleveland. At one time Mr. Birney was connected with the Jones & Laughlin Steel Corp.

□ □ □

Augustine Davis, 80, pioneer, oxy-acetylene welding inventor and a journalist, died Jan. 19 at Jamaica, Long Island, N. Y.

□ □ □

Michael Hively, 86, oldest of retired employes of the Colorado Fuel & Iron Co., Denver and Pueblo, Co., died recently. He established a record of 20 years service without a lost-time accident.

Pipe

Government Loans for Waterworks Developing Requirements—Utilities Buy 3000 Tons

Chicago—Activity in cast iron pipe consists more of work in prospect than in actual orders and inquiries. The Chicago sanitary district is attempting to obtain a loan of $36,450,000 from the Reconstruction Finance Corp. for extensive construction. Action on the new Chicago pumping station is expected to be taken soon, a loan having been approved. Several small waterworks projects are in prospect in Illinois, dependent upon favorable action on loan applications. Recent cast pipe orders are small.

The Natural Gas Pipe Line Co. of America has purchased 200 tons of 8-inch steel pipe for Mississippi river crossing at Davenport, Iowa.

Boston—Consolidated Gas Co. here is figuring on a heavy volume of steel pipe for a belt line in Boston, the project reported to cost $800,000. Sizes are mainly 10 and 12-inch. Cast pipe inquiry is slightly more active, Boston having re-advertised for bids on 1200 tons, while another municipality is inquiring for more than 1000 tons of 20-inch.

New York—Cast pipe buying is in small lots, with inquiry limited. Prices are untested at $30 to $32, eastern foundry, operations being greatly curtailed. Few municipalities have definitely figured requirements.

Approximately 3000 tons of steel pipe has been placed by the Consolidated Gas Co., and Brooklyn Union Gas Co., New York. New inquiry includes 2000 tons of casing and tubing.

Philadelphia—Early placing of approximately 2600 tons of welded pipe for foundation work for the local customs house is expected. The tonnage is mainly 18-inch pipe, and has resulted in severe competition. An Ohio fabricator is reported low bidder.

Pittsburgh—Operations in a local steelworks were increased last week to roll billets for its pipe mill to complete several seamless orders for export. The merchant pipe market displays little strength. Line pipe prospects are somewhat brighter. Pittsburgh Valve Foundry & Construction Co., Pittsburgh, will supply about 5000 feet of 3-inch seamless tubing and 22,000 feet of other tubular products for the Nos. 2 and No. 3 locks on the Allegheny river.

Cleveland—A Chicago contractor has been awarded the heating contract for the Cleveland postoffice, requiring 125 tons of steel pipe; pipe for the plumbing, 225 tons, has not yet been purchased. Current pipe orders are light, chiefly from jobbers.

Birmingham, Ala. — Cast pipe plants here operate only as orders are received, averaging not more than two or three days a week. New awards and specifications are not active.

Cast Pipe Placed

759 tons, 4 to 12-inch class 150, La Habra, Calif.; bids rejected and pipe purchased in open market.

Cast Pipe Pending

475 tons, waterworks, Pensacola, Fla. R. F. C. to purchase $50,000 bonds. Project includes 500,000-gallon steel tank.

200 tons, waterworks, Riverton Pipe Line Co., Riverton, Utah. R. F. C. has purchased $20,000 bonds.

Unstated tonnage, waterworks, San Juan, Puerto Rico. R. F. C. has purchased $1,300,000 bonds.

Unstated tonnage, several miles of various sizes, waterworks improvement Fabens Water Co., Fabens, Tex. R. F. C. to purchase $15,000 bonds. Project includes steel tank.

Steel Pipe Pending

225 tons, plumbing, Cleveland postoffice; general contract to Jacob Feldman, Cleveland.

125 tons, for heating equipment, Cleveland postoffice; general contract to E. J. McDonough, Chicago.

Unstated tonnage, galvanized steel conduit pipe, navy; Steel & Tubes Inc., Cleveland, low, $6010.30, delivered, east and west yards.

Strip

Small Orders for Prompt Use Make Up Demand—Some Gain As Automotive Needs Continue

STRIP PRICES, PAGE 29

Pittsburgh — Strip orders are small and continue to specify immediate delivery. Automotive orders are largely unimproved in view of these consumers being willing to specify only for immediate needs. Hot-rolled carbon strip is firm at 1.45c, Pittsburgh, but cold-rolled strip is quoted 1.90c to 2.00c, Pittsburgh.

Boston—Cold-rolled steel strip in current small lots holds at 2.20c. Worcester, with occasional shading. Total buying is fair. Textile, stamping and miscellaneous buying show improvement.

New York—While hot-rolled strip continues to hold nominally at 1.45c, Pittsburgh, or 1.80c, delivered, the market is weak, and on cold-rolled material 1.90c to 2.00c, Pittsburgh, or 2.25c to 2.35c, delivered, are now the usual market, with the inside price the more representative. Trading is dull.

Philadelphia—Cold-rolled strip is easy at 1.90c to 2.00c, Pittsburgh, or 2.21c to 2.31c, delivered. Hot strip is nominally 1.45c, Pittsburgh, or 1.76c, delivered. Trading is at a virtual standstill.

Cleveland—Releases from General Motors units and from Chrysler are fairly well sustained, but in other directions the market in quieter. Miscellaneous requirements have failed to improve materially. The "Buy British" movement has cut into the business of several specialty makers using strip who formerly exported a considerable portion of their products. The usual prices for cold-rolled strip are 1.90c to 2.00c, base, Cleveland, and for hot-rolled, 1.45c, Pittsburgh.

Chicago—Strip steel orders are slightly heavier and mill operations show a moderate gain to about 15 to 20 per cent. Automotive specifications lead, with occasional improvement noted in orders from miscellaneous users. The general market continues 1.55c, Chicago, for hot strip, and 2.00c, Pittsburgh-Cleveland, for cold-rolled strip.

Steel Rate Goes to 18 as Chicago Gains 3 Points

Pittsburgh —Ingot operations last week leveled off at 14 per cent and thus were unchanged. The rate had gained for two successive weeks previously. A large mill here is operating a few points better than this rate but open-hearth departments in two independent mills were closed last week. Seven out of 53 steelworks blast furnaces are active. The open-hearth plant at Toronto, O., was scheduled to resume late last week. Indications point to a one point gain in the operating rate this week.

Philadelphia—Steel making operations continue at 11 to 12 per cent, with little immediate change in prospect.

Operations, week ended Jan. 21	**18**
Operations, week ended Jan. 14	**17**
Operations, week ended Jan. 7	**15.5**
Operations, one year ago	**27**
High for 1932, Feb. 6	**28.5**
Low for 1932, July 9 & Dec. 24	**12**

Buffalo—District steelworks will operate this week at 22 per cent, eight open hearths being in production. Republic resumed with two open hearths Jan. 19. Bethlehem continues with five on, and Wickwire with one. Staggered schedules probably will drop operations to 16 or 17 per cent the end of this week.

Youngstown, O.—Steelmaking operations held here last week at 18 per cent, despite the fact Republic dropped two open hearths here as it lighted two at Buffalo. This is also expected to be an 18 per cent week. Twenty-one of 83 open hearths are on.

Cleveland—Steel ingot production here for the week ended Jan. 21 was at 41 per cent, up 6 points from the preceding week, with Otis Steel Co. lighting two additional open hearths making six active for this interest; and Corrigan, McKinney Steel Co. and American Steel & Wire Co. continuing with four each. In two instances yard stocks have been reduced much faster than anticipated, and production is likely to be increased, though schedules for the current week call for 41 per cent.

Chicago—Steel ingot production increased the past week, with about 13 per cent of open-hearth furnace capacity operating, compared with 10 per cent previously. Blast furnace schedules are unimproved, six of the 36 steelworks furnaces and one merchant stack continuing in blast.

St. Louis—The Granite City Steel Co. plans to light two open hearths Jan. 23.

Birmingham, Ala.—Steel production remains at 20 per cent.

Sault Ste. Marie, Ont.—Algoma Steel Corp. is operating single shift, with orders on hand for three months, totaling 65,000 tons.

Sydney, N. S.—Dominion Steel & Coal Corp. will continue employing 1000 men, on the present scale of operations, until Feb. 15.

Warehouse Selling Shows Small but Steady Gain

New York—Warehouse volume has shown little gain thus far this year. While prices are officially unchanged, shading prevails and foreign steel competition is keenly felt.

Boston—Volume of sales by warehouses is increasing slowly. Foreign steel, principally lighter products, continues, to affect the market adversely. Prices are mixed, with some shading on sheets.

Philadelphia—The slight improvement of a week ago has not been sustained. Most leading jobbers describe business so far this month as about even with that of the corresponding period last month. Warehouse prices are unchanged.

Pittsburgh—Steel warehouse sales for the first half of January were under the same portion of December. A reduction in common and cement coated nails, galvanized and black wire is expected.

Detroit—Warehouse business in iron and steel is slightly more irregular than in December, and the volume thus far in January is somewhat under the corresponding period of December. Prices are steady.

Cleveland—The volume of warehouse business here so far this month is less than in the comparable periods of either November or December.

Cincinnati — Warehouse demand has not yet exhibited the upturn anticipated after the inventory period. The trend has been slowly upward, but orders have been for small lots.

Chicago—Sales are more active following quiet during the first half of the month. Size of purchases is unchanged, although orders are more numerous. Quotations are unchanged.

St. Louis—Business of iron and steel warehouses shows steady, though gradual, improvement since the close of the inventory period. There has been a fair movement of a variety of commodities to railroad shops, also some fill-in orders for track supplies.

RAW MATERIAL PRICES

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Asterisk denotes price change this week

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$15.50
Pittsburgh, dist. furnace	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Philadelphia, delivered	13.26 to 13.76
Virginia furnace	17.25
Granite City, Ill., furnace	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	18.90
Buff., all-rail, Newark	17.28
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. Louis	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock delivery	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinci.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local delivery	16.50
Buff., all-rail, Brooklyn	19.40
Buffalo, all-rail, Newark	17.78
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	17.75
Eastern, del. Philadelphia	13.76 to 14.26

FOUNDRY, NO. 1X

Buffalo fur., local delivery	17.50
Eastern, del. Philadelphia	14.26 to 14.76

MALLEABLE

Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	15.50
Buffalo, fur., local del.	16.50
Eastern Penna, delivered	14.63 to 18.91
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district furnace	14.00
Pittsburgh, delivered	14.63 to 15.13
Eastern Penn., delivered	13.50
Buffalo fur., local delivery	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00

BESSEMER

Valley furnace	14.50 to 15.00
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

LOW PHOS.

Valley furnace, standard	25.00
*Philadelphia, standard	22.76 to 25.79
*Copper bear., E. Pa. fur.	20.50 to 21.50

GRAY FORGE

Valley furnace	14.00
Pittsburgh district furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19; 15—$21 to $23.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

BEEHIVE OVENS

Connellsville furnace	$1.75 to 2.00
*Connellsville foundry	2.50 to 4.00
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

BY-PRODUCT FOUNDRY

Newark, N. J., delivered	8.21 to 8.81
Chicago, ovens, outside del	7.00
Chicago, delivered	7.75
New England, delivered	10.00
St. Louis, delivered	7.75
Birmingham, ovens	4.00
Indianapolis, delivered	7.75
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, delivered	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania New Jersey furnaces (Nominal)

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports (Nominal)

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.00
North African low phos	7.00
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	8.00
Spanish, North African basic, 50 to 60%	7.00
Tungsten, spot, short ton unit, duty paid	$ 9.75 to 10.00
Newfoundland fdy., 55%	7.00
*Chrome ore, 48% gross ton c.i.f.	$15.50 to 16.50

Manganese Ore

(Nominal)

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55%	nominal
South African, 52%	18 to 19 cents
South African, 49-51%	nominal
South African, 44-47%	nominal
Indian, 48-50%	nominal
Brazilian, 46-48%	17 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
*Missouri	32.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Md.	25.00 to 30.00
*Missouri	26.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	$35.00
Joliet and East Chicago	47.00
Birmingham, Ala	50.00

MAGNESITE BRICK

Per Net Ton

Burned, 9 x 4½ x 2½	$61.50
Unburned, 9 x 4½ x 2½	52.00

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$26.00
Pittsburgh, bessemer	26.00
Youngstown	26.00
Cleveland	26.00
Philadelphia	31.75
Chicago	26.00
Forging, Chicago	31.00
Forging, Pittsburgh	31.00
Forging, Philadelphia	35.75

SHEET BARS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00

SLABS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00

WIRE RODS

*Pittsburgh, Cleveland	$35.00
*Chicago	36.00 to 38.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

Ferromanganese, 78-82%, tidewater, duty paid	$68.00
Ferromanganese, del. Pittsburgh	73.24
Spiegeleisen, 19-20%, domestic fur. spot†	24.00
Ferrosilicon, 50 per cent, freight all., c. l.	74.50
Do, less carload	82.50
Do, 75 per cent	120.00 to 130.00
Silicomang., 2½% carb.	85.00
2% carbon	90.00
1% carbon	100.00
(The above for spot carlots. Contract price $5 a ton less.)	
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. con. del.	9.50
Do, for spot delivery	10.00
Ferrotungsten, stand., lb. cont.	0.94 to 1.00
Ferrovanadium, 35 to 40 per cent, per lb. contained, on analysis	2.60 to 2.80
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	50.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $2.75 unitage	65.00
Ferromolybdenum, stand. 50-60 per cent, per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	0.80

†Carloads. Differentials apply to quant.

Fluorspar

85 and 5 per cent grade

Washed gravel, f.o.b. Ill., Ky., net ton car loads	$10.50
Washed gravel, import duty paid tide, gross ton	16.50

Backed by PROVEN DEPENDABILITY

A WIRE from one source may work beautifully, yet not be a dependable wire. Wire, to be truly dependable, must not only be right once but the same in every shipment . . . IT MUST BE UNIFORM. Coupled with a dependable product is the service offered by the Wickwire Spencer Steel Company to its users... the service of fitting the proper wire to the job and carrying ample stocks to meet the customers' requirements.

This combination of service and product makes this Company a dependable source of supply.

Wickwire Spencer does not buy its rods, it makes them. Every manufacturing operation is performed by its men, within its own plant and under scientific control. The dependability of WISSCO WIRE has been proven by successful use in most exacting wire working plants everywhere.

●

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41 East 42nd Street, New York City; Buffalo, Chicago, Detroit, Philadelphia, Tulsa, Worcester; Pacific Coast Headquarters: San Francisco; Warehouses: Los Angeles, Seattle, Portland. Export Sales Department: New York City

Wissco Wire
by Wickwire Spencer

Wickwire Spencer manufactures High and Low Carbon Wires—in various tempers, grades and finishes—for your specific purpose. Hard-Drawn, soft, or annealed Basic or Bessemer Wires—Hard-Drawn annealed, or oil-tempered Spring Wire, Chrome Vanadium Spring Wires—Valve Spring — Music — Clip — Pin — Hairpin — Hook and Eye — Broom — Stapling — Bookbinding — Machinery Spring Wire — Reed Wire — Clock — Pinion — Needle-Bar — Screw Stock — Armature Binding — Brush — Card — Florist —Mattress—Shaped—Rope—Welding. Flat Wire and Strip Steel, High or Low Carbon—Hard, annealed or tempered—Clock Spring Steel—Corrosion and Heat Resisting Wires. Consult the Wissco technical man on your wire problems, however large or small.

Pig Iron

Shipments Continue Well Ahead Of December Rate, but New Buying Shrinks—Few Inquiries

PIG IRON PRICES PAGE 36

Pittsburgh—A few more carloads of pig iron were ordered by one or two foundries here during the week. For work on Allegheny river locks Nos. 2 and 3 about 1600 tons of cast iron, malleable and steel fittings, several hundred tons of cast iron valves and miscellaneous castings have been placed with Pittsburgh Valve Foundry & Construction Co., Pittsburgh. Several local steel foundries have an inquiry from a York, Pa., contractor for waterwheel and other castings for the Hoover dam, Boulder City, Nev. The total amount of castings may be as much as 4000 tons. Prices continue nominal.

Boston—Sales are light, with little increase noted in foundry operations. The New England producer is holding at $16 to $17, furnace, but some domestic sellers are meeting foreign competition.

New York—Few individual orders for more than a carlot are noted. Prices are unchanged, with Buffalo iron $14, furnace, for delivery in this district, and eastern Pennsylvania iron $12.50 to $13, base, furnace. The Eastern Malleable Iron Co., Troy, N. Y., is low on a $7000 contract for malleable castings for the New York board of transportation.

Philadelphia—The slight flurry in pig iron a week ago appears to have subsided. Eastern Pennsylvania foundry iron is unchanged at $12.50 to $13, furnace, although offerings of Manchurian iron at prices reported as low as $11.50, docks, are having a disturbing effect. Basic is nominally unchanged at $13.50, delivered, eastern Pennsylvania.

Buffalo—January shipments are exceeding December averages. Only one blast furnace of 17 in this district is in production. One is banked and may resume operations shortly.

Cleveland—Large consumers which customarily are in the market at this time have not yet issued inquiries, and many of them, including General Motors, still are taking iron on contracts carried over from last year, with prices applying at time of delivery. New inquiries here this week do not exceed a total of 2000 tons, and sales for the week are slightly smaller, in the aggregate, than for the week preceding. Lake furnace shipments this month, however, are 20 per cent ahead of those in the comparable period last month, practically all of the improvement being represented in automotive foundry requirements. The Cleveland price is nominal at $15, base, for local delivery, untested except by occasional carloads. For shipment to outside competitive district $13.50 to $14, base, furnace, usually apply.

Cincinnati—Hesitancy still is noted in the market here, with new orders during the week aggregating only a few hundred tons. Shipments, however, are fairly steady.

Chicago—Demand shows a moderate gain over December, although not quite equal to the October rate, which was the peak of the fourth quarter. Inquiry remains fairly active, with some increase in size. The automotive industry is outstanding in pig iron consumption, shipments being heavier than a month ago. Prices remain fairly steady at $15.50 furnace, for No. 2 foundry and malleable.

St. Louis—Jobbing foundries report a slight improvement in orders, but the outlook in farm implement and stove manufacture still is drab. Several stove foundries which usually resume immediately after the year-end holidays will not go into production until February. Included in pig iron orders totaling 750 tons for the week, is 200 tons for an east-side smelter. Prices are steady.

Birmingham, Ala.—A little pig iron is being shipped from this district, generally at $10, base, Birmingham, with $11 the price for southern delivery. The local melt is far from satisfactory.

Toronto, Ont.—Though melters continue to buy only single carlots, the volume has been improving slowly. No large orders have been closed for future delivery. Prices are unchanged.

Ferroalloys Moving In Better Volume

Ferroalloy Prices, Page 36

Specifications for ferromanganese continue to improve slightly, due primarily to better steelmaking operations in the Middle West. Prices are unchanged at $68, duty paid. Domestic spiegeleisen, 19 to 21 per cent, is $24, furnace, for spot shipment, while contract prices are subject to individual negotiation.

Mineral output of Alaska in 1932 included $531,000 worth of copper and $535,000 worth of coal.

Coke

More Liberal Releases from Foundries Noted at Pittsburgh —Domestic Orders Down

COKE PRICES, PAGE 36

Pittsburgh—A moderate gain in metallurgical coke shipments developed in the past week when two or three foundries in this district specified more liberally. Coke for domestic heating purposes, however, is the most active. The furnace grade is moving slowly and remains at $1.75, furnace. Foundry coke is $2.50 for common grades, and $4 for premium brands, furnace.

New York—Metallurgical coke specifications continue to drag, with beehive furnace coke holding at $1.50 to $2, and $2 to $2.15, Connellsville, for the heating and smelting grades respectively. Beehive foundry coke is $2.50 to $4.25, western Pennsylvania ovens, depending upon analysis. By-product foundry coke is $8.21 to $8.81, Newark, N. J.; $10, New England; and $8.50, Philadelphia.

Cincinnati—Demand for by-product foundry coke is dull. The majority of consumers refuse to contract and buy only according to immediate needs.

Chicago—By-product coke activity is lagging. Shipments of the foundry grade are slower and compare unfavorably with the December movement. Consumption of heating coke has been reduced sharply so far this month as a result of mild weather. Foundry coke continues $7, ovens, for outside delivery, and $7.75, delivered Chicago.

St. Louis—Metallurgical coke specifications have increased moderately, but new buying is almost entirely lacking. By-product oven interests here anticipate ordering this year will continue on a hand-to-mouth basis.

Birmingham, Ala.—A slight improvement is noted in by-product oven operations. Shipments of domestic grades are steady. Prospects for a better market for metallurgical coke are said to be brighter.

Scrap

Moderate Buying as Melt Grows —Prices Make Slight Changes In Adjustment—Supply Light

Chicago—Although mills have little scrap tonnage due against orders, new buying is deferred. Some additional purchases are looked for soon, with tonnage small. Old material is available in only small lots, due largely to the indisposition of railroads to sell. Low prices are being quoted on such offerings, one road in rejecting recent bids reporting quoted prices to be the lowest in its history. Occasional shortages are developing on some grades but prices show no upward tendency. Compressed sheet scrap is slightly stronger.

Boston—Scrap prices are mixed, heavy melting steel showing increasing firmness, but cast grades and malleable are easier. Scrap rails are also firmer. Business is large-

IRON AND STEEL SCRAP PRICES

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL			
Birmingham	7.50	to	8.00
Boston, dealers	3.00	to	3.25
Buffalo, No. 1	7.00	to	7.50
Buffalo, No. 2	6.00	to	6.50
Chicago	5.00	to	5.50
Cleve., No. 1	7.00	to	7.50
Cleve., No. 2	6.00	to	6.50
Det., No. 1 deal.	4.50	to	5.00
Det., No. 2 deal.	3.00	to	3.50
E. Pa. del. mill			6.50
E. Pa., No. 2 del.	4.50	to	5.00
N. Y., deal. R. R.	4.50	to	4.75
N. Y. deal. No. 2			3.00
N. Y. deal. yd.	2.50	to	3.00
Pitts. No. 1	8.00	to	8.50
St. L. No. 1 sel.	5.50	to	6.00
Federal, Ill.	4.75	to	5.25
Granite City, Ill.	5.00	to	5.50
Valleys, No. 1	8.50	to	9.00

COMPRESSED SHEETS			
Buffalo, dealers	6.00	to	6.50
Chi. (Factory)	4.00	to	4.50
Cleveland	6.50	to	7.00
Detroit, dealers	4.00	to	4.50
E. Pa. new mat.	5.00	to	5.50
Pittsburgh	7.75	to	8.25
Valleys	8.00	to	8.50

BUNDLED SHEETS			
Buffalo	4.00	to	4.50
Cincinnati, del.	4.00	to	4.50
Cleveland	4.50	to	5.00
Eastern, Pa.			5.00
Pittsburgh	6.75	to	7.25
St. Louis	1.50	to	2.00

SHEET CLIPPINGS LOOSE			
Chicago	2.00	to	2.50
Cincinnati	1.50	to	2.00
Detroit, dealers	1.25	to	1.75
St. Louis	1.50	to	2.00

STEEL RAILS SHORT			
Birmingham	8.50	to	9.00
Boston, dealers	3.00	to	3.25
Buffalo	9.50	to	10.00
Chicago (3 ft.)	7.50	to	8.00
Chicago (2 ft.)	8.00	to	8.50
Cincinnati, del.	8.50	to	9.00
Detroit, deal.	8.00	to	8.50
Pitts. (open-hearth, 3 ft. and less)	10.00	to	10.50
St. Louis	7.00	to	7.50

STOVE PLATE			
Birmingham	5.00	to	5.50
Boston, realers	2.00	to	2.50
Buffalo	7.50	to	7.75
Chicago, net	4.50	to	5.00
Cinci., deal. net	3.50	to	4.00
Det., net deal.	2.50	to	3.00
Eastern, Pa.			6.00
N. Y., deal. mill	2.50	to	3.00
St. Louis	5.50	to	6.00

COUPLERS, SPRINGS			
Buffalo	8.50	to	9.00
Chicago	6.50	to	7.00
Eastern Pa.	8.00	to	8.50
Pittsburgh	9.00	to	9.50
St. Louis	5.25	to	6.25

ANGLE BARS—STEEL			
Chicago	7.00	to	7.50
St. Louis	5.75	to	6.25

LOW PHOSPHORUS			
Buffalo, billets and bloom crops	8.50	to	9.00
Cleveland bil. and bloom crops	10.00	to	11.00
Eastern Pa.	8.00	to	8.50
Pittsburgh billet bloom crops	10.00	to	10.50
Pitts., sheet bar crops	10.00	to	10.50

FROGS, SWITCHES			
Chicago	5.00	to	5.50
St. Louis	5.00	to	5.50

SHOVELING STEEL			
Chicago	5.00	to	5.50
Cleveland	5.75	to	6.00
St. Louis	4.75	to	5.25

RAILROAD WROUGHT			
Birmingham	7.50	to	8.00
Boston, dealers	1.00	to	1.50
Buffalo, No. 1	4.50	to	5.00
Buffalo, No. 2	7.00	to	7.50
Cinci., No. 2	5.00	to	5.50
Chi., No. 1, net	4.50	to	5.00
Chicago, No. 2	5.00	to	5.50
Eastern Pa.			6.50
N. Y., No. 1, deal.	2.50	to	3.00
Pitts., No. 2	8.00	to	8.50
St. Louis, No. 1	3.50	to	4.00

SPECIFICATION PIPE			
Boston	3.00	to	4.00
St. Louis	4.75	to	5.25
Eastern Pa.	7.00	to	7.50
N. Y., deal	2.00	to	2.25

BUSHELING			
Buffalo, No. 1	6.00	to	6.50
Chicago, No. 1	3.50	to	4.00
Cinci., No. 1 dl.	4.00	to	4.50
Cinci., No. 2	2.50	to	3.00
Cleve., No. 2	3.00	to	3.50
Det., No. 1 new deal.	3.25	to	3.75
St. L., No. 1	3.00	to	3.50
Val. new No. 1	8.50	to	8.75

MACHINE TURNINGS			
Birmingham	2.50	to	3.00
Boston, dealers	0.75	to	1.00
Buffalo	3.75	to	4.25
Chicago	3.00	to	3.50
Cinci., deal	3.00	to	3.50
Cleveland	4.50	to	5.00
Detroit	1.25	to	1.75
Eastern Pa.	3.00	to	3.50
N. Y., deal.	1.35	to	1.50
Pittsburgh	6.25	to	6.75
St. Louis	1.50	to	2.00
Valleys	6.25	to	6.75

BORINGS AND TURNINGS *For Blast Furnace Use*			
Boston, dealers	0.75	to	0.90
Buffalo	3.50	to	3.75
Cinci., deal	3.00	to	3.50
Cleveland	4.50	to	5.00
Detroit, deal.	1.75	to	2.25
Eastern Pa.	3.50	to	3.75
N. Y., deal.	1.35	to	1.50
Pittsburgh	5.75	to	6.25

CAST IRON BORINGS			
Birming., chem.	12.00	to	13.00
Birming., plain	2.50	to	3.00
Boston, chem.	5.50	to	6.00
Boston, dealers	1.00	to	1.25
Buffalo	4.25	to	4.50
Chicago	3.00	to	3.50
Cinci., deal.	3.00	to	3.50
Cleveland	4.50	to	5.00
Detroit, deal.	1.75	to	2.25
Eastern Pa.	3.50	to	3.75
E. Pa., chem.	8.00	to	10.00
N. Y., deal.	1.00	to	1.50
Pittsburgh	5.75	to	6.25
St. Louis	2.00	to	2.50

PIPE AND FLUES			
Cinci., deal.	3.25	to	3.50

RAILROAD GRATE BARS			
Buffalo	4.00	to	4.50
Chicago, net	5.00	to	5.50
Cincinnati	4.00	to	4.50
Eastern Pa.	5.50	to	6.00
N. Y., deal.	3.50	to	4.00
St. Louis	4.50	to	5.00

FORGE FLASHINGS			
Boston, dealers	2.00	to	2.50
Buffalo	5.50	to	6.00
Cleve. ov. 10 in.	6.00	to	6.50
Detroit	2.75	to	3.25

FORGE SCRAP			
Boston, dealers	1.75	to	2.00
Chicago	6.50	to	7.00
Eastern Pa., del.	5.00	to	5.50

ARCH BARS, TRANSOMS			
Chicago, net	5.00	to	5.50
St. Louis	3.50	to	4.00

AXLE TURNINGS			
Boston, deal.	2.50	to	3.00
Buffalo	6.25	to	6.75
Chi., elec. fce.	4.50	to	5.00
Cleveland	5.50	to	6.00
Eastern Pa., del.			7.00
Pittsburgh, O. H.	7.00	to	7.50
St. Louis	3.00	to	3.50

STEEL CAR AXLES			
Birmingham	9.00	to	9.50
Boston, ship pt.	6.00	to	6.50
Buffalo	10.00	to	10.50
Chicago, net	8.50	to	9.00
Eastern Pa.			14.50
St. Louis	8.75	to	9.25

SHAFTING			
Boston, ship pt.	6.50	to	7.00
N. Y., deal.	5.50	to	6.00
St. Louis	7.50	to	8.00
E. Penna.	11.00	to	12.00

CAR WHEELS			
Birming., iron	7.00	to	7.50
Boston, iron deal.	3.00	to	3.25
Buffalo, iron	7.00	to	8.00
Buffalo, steel	8.50	to	9.00
Chicago, iron	7.50	to	8.00
Chi., rolled steel	7.00	to	7.50
Cincinnati iron	6.25	to	6.75
E. Pa. steel	8.00	to	8.50
E. Pa. iron			8.50
Pitts., iron	8.00	to	8.50
Pitts., steel	9.00	to	9.50
St. Louis, iron	4.75	to	5.25
St. Louis, steel	6.00	to	6.50

NO. 1 CAST SCRAP			
Birmingham	8.00	to	8.50
Buffalo (Mach.)	9.75	to	10.25
Buffalo, cupola	9.00	to	9.50
Boston, textile	6.75	to	7.00
Boston, No. 2	2.00	to	2.25
Chi., mach. net	5.75	to	6.25
Chi., railroad net	5.50	to	6.00
Chicago, agri., net	5.00	to	5.50
Cinci., mach. cup	6.50	to	7.00
Cleve. cupola	7.00	to	8.00
Det., net deal.	6.50	to	7.00
E. Pa. cupola	9.00	to	9.50
N. Y., cup. deal.	4.50	to	5.00
N. Y., del. local foundries	7.00	to	7.50
Pitts., cupola	8.50	to	9.00
San Fran., del.	13.50	to	14.00
Seattle	4.50	to	6.50
St. L. No. 1 ma.	6.00	to	6.50
St. L. No. 1	5.50	to	6.00

HEAVY CAST			
Boston, del.	3.00	to	3.25
Bost., mach. cast	7.00	to	7.50
Buffalo, break.	6.50	to	7.00
Cleve., break	5.50	to	6.00
Detroit, auto net deal.	7.00	to	7.50
Det. break., dl.	4.00	to	4.50
Eastern Pa.			8.00
N. Y. No. 1, dl.	4.50	to	5.00
N. Y. break, dl.	4.00	to	4.50
Pittsburgh	8.00	to	8.50

MALLEABLE			
Boston, consum.	6.75	to	7.25
Buffalo	8.00	to	8.50
Chicago, agri.	5.00	to	5.50
Chicago, R. R.	5.50	to	6.00
Cinci., R. R., del.	6.50	to	7.00
Cinci., agri. del.	6.00	to	6.50
Cleveland, rail	7.50	to	8.00
Det. auto deal.	5.00	to	5.50
St. Louis	7.00	to	7.50

RAILS FOR ROLLING *5 feet and over*			
Birmingham	8.00	to	9.00
Boston, deal.	5.00	to	5.50
Buffalo	7.00	to	7.50
Chicago	7.50	to	8.00
Eastern Pa.			9.50
New York dealer	3.75	to	4.25
St. Louis	7.00	to	7.50

LOCOMOTIVE TIRES			
Chicago, cut	7.00	to	7.50
St. L., No. 1	5.00	to	5.50

LOW PHOS. PUNCHINGS			
Chicago	7.00	to	7.50
Buffalo	9.00	to	9.50
Eastern Pa.	8.00	to	8.50
Pittsburgh	9.50	to	10.00

ly confined to barge loading with one seller booking close to 3000 tons of No. 2 steel for export to Europe, for which $3.25 will be paid.

New York—Scrap buying is confined largely to No. 1 and No. 2 melting steel for export, with the former grade showing increasing firmness at $4.75, barge. Little scrap is moving by rail. Dealers continue to pay $3 for No. 2, but material is not coming out freely at this price.

Philadelphia—Recent sales have reduced the market on No. 2 heavy melting steel to $4.50 to $5, delivered, a drop of 50 cents a ton. Other reductions also are noted. Low phosphorus punchings and knuckles and couplers have been reduced to $8 to $8.50 and chemical borings to $8 to $10. Rolled steel wheels are now $8 to $8.50, a drop of 50 cents. Trading is light.

Buffalo—There have been no further transactions in scrap since the sale of a fair tonnage of No. 1 heavy melting steel at $7.25 but dealers anticipate additional buying shortly. Some trade leaders contend large tonnage can not be purchased here under $8 and that the next contract may even pass this level.

Pittsburgh — Owing to weakness from a lack of consumer buying, No. 1 heavy melting steel has receded 25 cents to $8 to $8.50. There have been no transactions on other grades and nominal prices continue. Steel scrap on the recent Baltimore & Ohio railroad list is understood to have moved to the Portsmouth, O., consumer. The leading interest here still displays only passing interest in scrap buying as several of its divisions were idle last week.

Cleveland—Increased open-hearth melt has upheld shipments of heavy melting steel and busheling on contracts and gives promise of further buying this month. Prices hold steady. In the Valleys, conditions are quiet.

Cincinnati—Activity in the iron and steel scrap market here is confined almost entirely to shipments against contracts, on which only a moderate tonnage is outstanding. Quotations are holding fairly well.

Detroit—A better tone is evident in iron and steel scrap markets, and firmer prices this week are a possibility. There is little demand from outside districts and a surprisingly small increase in offerings by automobile manufacturers, considering the improved production in December and January.

St. Louis—Aside from the purchase of 2000 to 3000 tons of heavy melting steel by an east side mill, trading in iron and steel scrap has been practically at a standstill. The tonnage acquired was divided among several dealers and the reported price was $5.50 per ton, or about 25 cents to 50 cents above the dealer quotations for this grade. Small tonnages can be had at current quotations, but it is doubtful if round lots could be.

Toronto, Ont.—While there is some demand for a few special grades of scrap most lines are inactive. Some sales of heavy melting steel and turnings are being made in the Montreal district. No. 1 machinery cast is steady but supplies are limited and dealers are importing. Dealers are out of the market and prices are unchanged.

Birmingham, Ala.—Iron and steel scrap is dull as for several weeks, purchasing is slow and invariably in small lots.

Wire Rods Reduced; Forging Billets Holding

Semifinished Prices, Page 36

Several inquiries for carbon and forging billets have developed firm quotations. Inquiry for forging billets brought out consistent bids of $31, Pittsburgh. An inquiry for several hundred tons of billets recently was quoted $26, Pittsburgh. Sheet bars are easier in some districts to nonintegrated sheet producers, but in general the $26 price on sheet bars as well as slabs is adhered to. Wire rods have been reduced $2 a ton to $35, Pittsburgh and Cleveland.

Refractories Demand Brings Little Activity

Refractories Prices, Page 36

Pittsburgh—No important refractory brick ordering has been noted thus far in 1933. Steel mills in this district continue to restrict purchases to immediate consumption and carry no shed stocks. First quality fire clay brick is quoted $35, Pennsylvania district, per thousand and chrome and magnesite brick is named at $42.50 and $61.50 per ton, respectively. A more stable position in the Missouri market is reflected in midwest competitive regions.

Equipment

International Harvester Buys Fair List of Machines

Worcester, Mass. — Inquiry and sales of machinery show little change, with most plants operating on short schedules. There are few exceptions, with a number of firms recently taking some foreign business. Reports are current that Russia will enter the market for machine tools shortly.

Pittsburgh—As the first month of 1933 is virtually completed, there has been no change in the quiet status of the steel mill equipment market. Just as large as formerly, the pending list of work looms impressively but purchasers do not feel it expedient to release funds for plant improvement or machinery. One interest here last week received a small order for steel mill rolls, but in general that market is as inactive as formerly. Ingot molds and refractories also move slowly.

Chicago—A better tone is noted in the market for machinery and plant equipment. This feeling is developing more from the willingness of users to discuss and plan future purchases rather than from any marked gain in actual orders. Sales show but little change compared with the preceding several months, although most changes are for the better. Steel plants are planning miscellaneous work although no large improvement programs are scheduled for early action. International Harvester Co. is reported to have placed an order for $25,000 worth of machine tools, probably in preparation for spring activity in the agricultural implement market.

Cleveland—All continues quiet on the middle western front as far as machinery and equipment business is concerned. Machine tool dealers, in face of discouraging sales, are holding to a policy of watchful waiting, confident of early improvement. A builder of welding machines reports outlook improved, although tangible evidence in the form of orders is lacking.

Hoist Sales Off Sharply

Electric Hoist Manufacturers' association reports the number of hoists ordered during December decreased 41.095 per cent, compared with the previous month, and the value of such orders decreased 36.275 per cent, compared with November. December shipments declined 24.037 per cent from November.

Mirrors of Motordom

(*Concluded from Page* 11)

serve the same purpose—mask the undergear and minimize splashing of the body.

In unseen parts steel has made good gains, and while only a painstaking survey would supply the supporting statistics it is readily evident that the proportion of iron and steel to total weight is greater this year than ever before.

Cadillac, LaSalle, Lincoln, Marmon and Studebaker, for example, this year have vacuum cylinders, connected with the manifold, to reduce the foot pressure required for braking. Pierce-Arrow and Studebaker have power brakes, energized by the driveshaft. Packard offers a brake selector, with four options.

Hupp is using a spring steel bar to keep the rear axle and frame in alignment on curves, terming it a side sway eliminator. Hupp also is featuring a wick-feed oiler for steering knuckle king pins. As the front wheels are turned a plunger is automatically depressed, which in turn exerts pressure on a felt wick saturated with oil and causes a flow of oil to the bearing surfaces.

From Roof to Wheels

Auburn comforts the sheet industry with a substitution of metal roof and side quarters for fabric. Marmon takes pride in a light weight aluminum engine, but the cylinders are steel. Plymouth is using tungsten-chrome alloy valve seats to combat heat and make regrinding less frequent. Lincoln and Nash have installed vacuum boosters to maintain constant pressure for windshield wipers.

For steel, the trend toward linking the accelerator and starter pedals, as in the Chevrolet, Chrysler and DeSoto, involves a slightly greater use which is about a standoff for the substitution of a dash starter button in Buick, Nash, Lincoln, Pontiac, Rockne and Auburn custom jobs, to mention only a few. Even the rush for improved engine mountings, while featuring rubber, does not pass steel by, as arms and springs of steel are required.

More safety inheres in wheels this year, due to the widespread acceptance of a new type of steel artillery wheel which, for one thing, may bend but will never break and let the car down. In the Budd type, which is typical, the spokes are hollow, the spoke ends are folded over, and riveted directly to the rim. Made of one piece of steel, in spider formation, the shape is distinctly convex, flowing from the spokes outwardly to the large hub cap. The back is open, or closed with a welded plate. Chromium finish of these steel wheels is more popular than lacquer finish. These wheels have the same weight as wire ones.

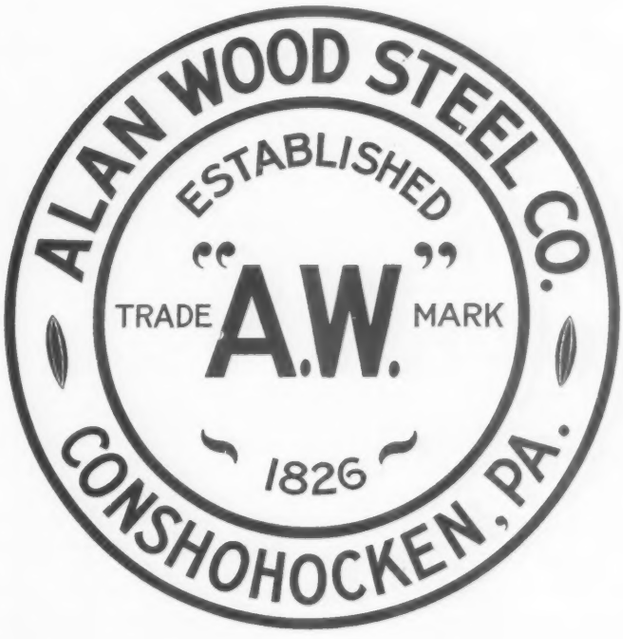
Container Interests Ford

Ford is said to be interested in a 1-ton steel package container which can be loaded by a manufacturer, shipped on a flat car, then mounted for local delivery on a light truck chassis—much like the present container system of some railroads, but more mobile . . . . Continental is claiming 30 miles to the gallon for its new four . . . . Hudson claims for its Terraplane eight one horsepower for every 27 pounds of weight, on this basis probably the most powerful car on the market . . . . Tire manufacturers are checking cars on parking lots and at curbs, noting license numbers of cars with worn tires and supplying the names of owners to its salesmen as prospects. . . . By coating the combustion chamber with lead carbonate it is claimed lower octane gas can be used successfully . . . . The axleless truck, with a demountable engine, described in the Dec. 26 issue, is an offering of Stutz . . . . Pierce-Arrow says it will build only five of its silver arrow model, with a 12-cylinder engine, top speed of 115 miles and price of $10,000.

Carbon and Alloy Steels
Blue Annealed Sheets,
Sheared Plates: also Billets.

Rolled Steel Floor Plates
Diamond, Diamondette and Ribbed Patterns

Swede Pig Iron
Rainey-Wood Coke



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Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 5.50c, Conn., for copper

SHEETS	
Yellow brass (high)	11.00
Copper, hot rolled	13.62½
Lead sheets, cut, to jobbers	7.00
Zinc sheets (100-lb. base)	9.00
TUBES AND PIPES	
Seamless yellow brass (high)	13.25
Seamless copper	12.37½
RODS	
Yellow brass (high, full turning)	8.50
Naval brass	9.62½
ANODES	
Copper, untrimmed	10.50
WIRE	
Yellow brass (high)	11.00

Old Metals

Dealers' buying prices, cents lb.

	No. 1 Composition	Red Brass
New York	2.37½ to 2.62½	
Chicago	2.00 to 2.25	
Cleveland	2.25 to 2.50	
St. Louis	2.25	
HEAVY YELLOW BRASS		
New York	1.75 to 1.87½	
HEAVY COPPER AND WIRE		
New York	3.50 to 3.75	
Chicago, No. 1	2.87½ to 3.12½	
Cleveland	2.75 to 3.00	
St. Louis	2.50	
COMPOSITION BRASS BORINGS		
New York	2.25 to 2.50	
YELLOW BRASS TUBING		
Cleveland	1.50 to 1.75	
LIGHT COPPER		
New York	2.00 to 2.25	
Chicago	2.12½ to 2.25	
Cleveland	2.25 to 2.50	
St. Louis	2.25	
LIGHT BRASS		
Chicago	1.00 to 1.25	
Cleveland	1.00 to 1.25	
St. Louis	1.25	
LEAD		
New York	2.00 to 2.25	
Cleveland	1.50 to 2.00	
St. Louis	2.00	
ZINC		
New York	1.12½ to 1.25	
Cleveland	1.00 to 1.12½	
St. Louis	1.25	
ALUMINUM		
Clippings, new, soft, Cleve.	9.50 to 10.00	
Clippings, hard, Cleveland	6.00 to 7.00	
Borings, Cleveland	2.50 to 3.00	
Mixed cast, Cleveland	4.00 to 5.00	
Mixed cast, St. Louis	4.00 to 4.25	

Secondary Metals

Brass ingot, 85-5-5-5	5.25
Remelt aluminum No. 12	8.00 to 9.00

Metals

Prices Fairly Steady Despite Slow Buying—Zinc Settles to 3.00c—Copper at Standstill

New York—Demand for metals continued quiet last week. However, a fairly steady situation was maintained with regard to quotations. The anticipated improvement in demand after the first of the year has not yet made its appearance. Market interests foresee little betterment until the general business situation becomes more clarified.

Copper—The market was practically at a standstill last week. Consumers took only light tonnage and sellers, on the other hand, apparently were not disposed to force metal on the market. The open-market business over the past few weeks is understood to have gone largely to the custom smelters and these interests have been maintaining a fair balance between ore intake and outgoing shipments. Mine producers have not participated in the market at the going price of 5.00c, Connecticut, but are understood to have sold metal to fabricating subsidiaries at 5.50c. The foreign market was less active last week with metal sold at as low as 4.95c, c.i.f. European ports.

Zinc—Dullness prevailed in the market with metal more freely available at 3.00c, East St. Louis. The business booked was mostly for spot delivery with the balance for February. High-grade zinc sellers held to 4.50c, delivered.

Lead—Buying was in small volume with delivery in January generally asked. A few carlots were booked for February. Prices maintained a firm appearance with 2.87½c, East St. Louis, and 3.00c, New York, quoted for January and February shipment.

Tin—Demand for Straits metal was dull with prices generally slightly under the level of the preceding week. Domestic prices were largely nominal, being determined generally by day-to-day fluctuations on the London Metal exchange.

Antimony—Some sellers for Chinese antimony quoted 6.00c, duty paid, on spot but others offered the metal at 5.70c and 5.80c. Restrictions on Chinese imports resulted in the higher prices.

Aluminum—Prices held steady with demand light. Remelt grades were somewhat inclined toward easiness in some districts.

Silver—Prices have fluctuated little. Commercial bars were quoted 25.37½c Jan. 20.

Quicksilver Is Quiet

New York—The quicksilver market is generally quiet, although a little business has been booked by sellers recently. Prices are unchanged.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26

Per Pound at Producers' Plants in 250-Pound Drums

Phenol	0.153 to 0.173

Per Pound at Producers' Plants

Naphthalene flakes	4.75 to 5.75
Naphthalene balls	4.75 to 5.75

Per 100 Pounds Atlantic Seaboard

Sulphate of ammonia	$1.10

round lots being quoted $48, a virgin flask of 76 pounds, and $49 for small lots.

Mexico Raises Wire Duty

A Mexican presidential decree, effective Dec. 31, increased import duties on galvanized iron and steel wire. The new duties do not apply to shipments which left the port of embarkation prior to Dec. 31.

Nonferrous Metal Prices of the Week, Cents a Pound

Spot unless otherwise specified

	Copper—Electro., del. Conn.	Copper—Lake, del. Midwest	Copper—Casting, refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Antimony Spot, N. Y.	Ingot Nickel
Jan. 14	5.00	5.12½	4.75	22.50	22.65	3.00	2.87½	3.00	22.90	5.85	35.00
Jan. 16	5.00	5.12½	4.75	22.37½	22.57½	3.00	2.87½	3.00	22.90	5.70	35.00
Jan. 17	5.00	5.12½	4.75	22.65	22.85	3.00	2.87½	3.00	22.90	5.70	35.00
Jan. 18	5.00	5.12½	4.75	22.67½	22.80	3.00	2.87½	3.00	22.90	5.70	35.00
Jan. 19	5.00	5.12½	4.75	22.40	22.55	3.00	2.87½	3.00	22.90	5.70	35.00
Jan. 20	5.00	5.12½	4.75	22.62½	22.77½	3.00	2.87½	3.00	22.90	5.70	35.00

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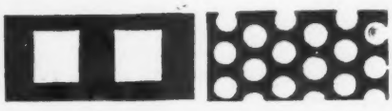

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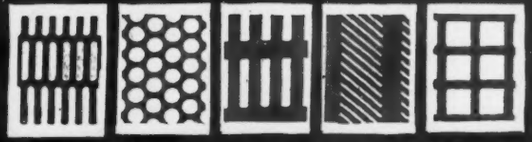

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Europe

General Conditions Better—Revival of Steel Entente Is Attempted—Sales Show Gain

London — (*By Cable*) — Foreign trade of Great Britain in December was less advantageous than in November. Imports of iron and steel commodities rose from 57,892 tons in November to 72,748 tons in December. Exports fell from 170,261 tons in November to 163,895 tons in December.

Pig iron trade is improving slowly in the Middlesbrough district. The steel trade is more active but low Continental prices are a check on improvement in the Midland area. However, little business is passing. The iron industry in Staffordshire continues depressed. Galvanized sheets are quiet.

The Continent reports prices are hardening somewhat under influence of a generally improved position. Business is more active with demand being filled for consumers in China, Japan, India and Egypt. Negotiations have been resumed for reviving and making effective the European steel entente. The organization has been maintained, though inactive, in recent months.

Pacific Coast

Demand Light but Many Small Lots Are Covered

San Francisco—(*By Air Mail*)—Interest now centers around the opening of bids Feb. 28 for the first unit of the San Francisco-Oakland bay bridge, contract No. 2, involving 1900 tons of reinforcing bars, 150 tons of shapes and 225 tons of spikes and bolts. This portion of the work is known as the West Bay substructure, Piers 2 to 6. Activity is not pronounced and few awards of importance are reported placed. Prices, save for plates and reinforcing steel bars, remain firm.

Over 1100 tons of reinforcing bars were awarded. Included among the larger lots were 164 tons for highway work in Clark and Pershing counties, Nevada, and 157 tons each for highway work in Monterey and Los Angeles counties, California.

Western Pipe & Steel Co. booked 100 tons of welded pipe for Los Angeles under specification 2960. Bids open Jan. 27 for 200 tons for eight welded plate gates for Hoover dam, specification 541. Prices are weak at 2.00c, c.i.f., and as low as 1.90c has been named recently.

Shape awards aggregated more than 1000 tons. Unnamed interests took 402 tons for a bridge over the Green river in Utah and 300 tons for a building for the United States forest service at Ogden, Utah.

Bids open next week on 197 tons of cast iron pipe for Soledad, Calif. Ducommun Corp., Los Angeles, has secured 3881 tons of 5 to 8-inch gas line pipe for the metropolitan water district of southern California and will supply Republic Steel Corp. pipe.

Seattle Trade Is Dull

Seattle—While steel activity in the Pacific Northwest is at low ebb, awards for the week exceeded 1200 tons. New work is slow in developing but prices remain firm and there is little competition from imports.

Dominion Bridge Co. Ltd., Vancouver, B. C., was awarded the contract to furnish 3980 feet of 60-inch electric welded pipe for the Vancouver water system extension. The job totals 850 tons of plates. British steel will be used, figures for Canadian steel being nearly $12,000 higher.

The lighthouse department has awarded to the Berg Shipbuilding Co., Seattle, contract to construct the 175-foot steel lighthouse tender HEMLOCK, requiring about 200 tons each of shapes and plates. Two triple expansion engines, 1000 total horsepower, will be built by the Washington Iron Works, Seattle, while the steel will be furnished and fabricated by Isaacson Iron Works, Seattle. Two water tube boilers, about 40 tons of steel, will probably be subcontracted to an eastern plant.

With building construction showing no improvement, there is little demand for reinforcing materials and local mills see no prospect of reopening. No bids were offered this week for the Seattle waterfront job involving about 7500 tons of sheet steel piling and reinforcing. The matter has been postponed for sixty days. About 260 tons of shapes and concrete bars are pending for a bureau of roads bridge in Whatcom county, Washington.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Jan. 19

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
PIG IRON		£ s d		£ s d
Foundry, 2.50-3.00 Silicon	$ 9.80	2 18 6	$8.27	1 14 0
Basic bessemer	9.05	2 14 0*	6.57	1 7 0
Hematite, Phos. .03-.05	9.88	2 19 0	.....	.....
SEMIFINISHED STEEL				
Billets	$16.33	4 17 6	$9.61	1 19 6
Wire rods, No. 5 gage	25.13	7 10 0	21.90	4 10 0
FINISHED STEEL				
Standard rails	$25.96	7 15 0	$26.77	5 10 0
Merchant bars	.94c	6 5 0	.52c to .53c	2 7 6 to 2 8 0
Structural shapes	1.11c	7 7 6	.46c	2 1 6
Plates, †¼ in. or 5 mm	1.28c	8 10 0	.69c to .72c	3 2 6 to 3 5 0
Sheets, black, 24 gage or 0.5 mm.	1.28c	8 10 0	1.21c	5 10 0
Sheets, gal., 24 gage, corr.	1.58c	10 10 0	1.49c	6 15 0
Bands and strips	1.16c	7 15 0	.74c to .77c	3 7 6 to 3 10 0
Plain wire, base	1.39c	9 5 0	1.18c	5 7 6
Galvanized wire, base	1.65c	11 0 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.65c	11 0 0	1.27c	5 15 0
Tin plate, box 108 lbs.	$ 2.68	0 16 0	$3.20	0 13 2

British ferromanganese $68 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks	
Fdy. pig iron, Si. 2.5	$9.80	2 18 6	$ 8.00	205	$ 8.31	300	$14.99	63
Basic bessemer pig iron	9.05	2 14 0*	6.24	160	7.76	280	16.54	69.50
Furnace coke	2.26	0 13 6	4.84	124	3.05	110	4.57	19.20
Billets	16.75	5 0 0	14.43	370	10.11	365	22.97	96.50
Standard rails	1.24c	8 5 0	1.25c	697	1.50c	1,150	1.37c	127
Merchant bars	1.01c	6 15 0	.95c	530	.64c	495	1.19c	110
Structural shapes	1.31c	8 15 0	.99c	550	.63c	485	1.16c	107.50
Plates, †¼-in. or 5 mm	1.35c	9 0 0	1.17c	650	.75c	575	1.37c	127
Sheets, black	1.43c	9 10 0§	1.44c	800‡	.91c	700‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	1.76c	11 15 0	2.83c	1,570	1.82c	1,400	4.00c	370
Plain wire	1.43c	9 10 0	2.03c	1,130	1.69c	1,300	1.92c	178
Bands and strips	1.43c	9 10 0	.90c	500	.81c	625	1.37c	127

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price.
British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel.

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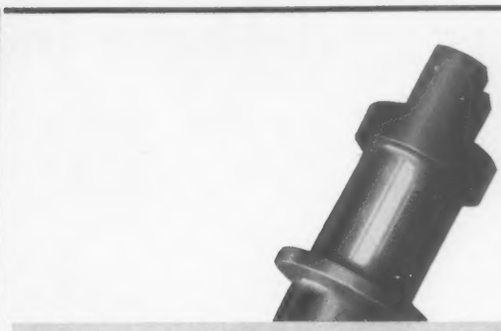

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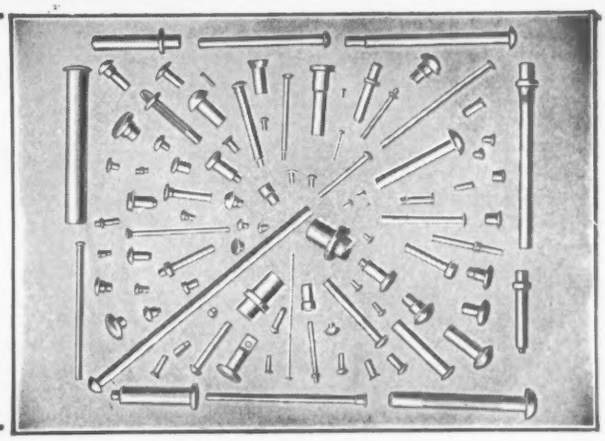

Here and There in Industry

MARQUETTE TOOL & MFG. CO., Clearing, Ill., maker of die cushions and presses, has been acquired by the E. W. Bliss Co., Brooklyn, N. Y. The company's plant has been closed and machinery transferred to the Bliss plant. R. W. Glasner, former president of the Marquette company, has been placed in charge of Chicago district sales of the E. W. Bliss Co., with headquarters at 919 North Michigan avenue. Toledo Machine & Tool Co., Toledo, O., a manufacturer of sheet metal working equipment, has been acquired by the same interest.

□ □ □

Mills Co., Cleveland, has appointed San Angelo Building Materials Co., 808 Western Reserve Life building, San Angelo, Tex., its sales representative for central Texas.

□ □ □

Dravo-Doyle Co., Pittsburgh, has been appointed distributor in the Pittsburgh district for Carrier Products Corp., Newark, N. J., manufacturer of air-conditioning equipment.

□ □ □

Taubman Supply Co., Tulsa, Okla., has opened an office and warehouse with pipe yard at Houston, Tex., in charge of A. L. Kornfeld, formerly located at Laredo, Tex.

□ □ □

Invincible Metal Furniture Co., Manitowoc, Wis., manufacturer of steel business equipment, has established a sales office at 152 West Wisconsin avenue, Milwaukee, in charge of J. R. Bate as direct factory representative.

□ □ □

Babcock & Wilcox Tube Co., New York has appointed Fritz Hoving its west coast district sales manager, with headquarters in the offices of A. M. Castle & Co., its west coast agent, 2200 East Fifty-fifth street, Los Angeles.

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Grigsby-Grunow Co., Chicago, will recall about 2000 workers to its refrigerator division this month. Unfilled orders are four times as large as at any corresponding period in recent years. Shipments in 1932 were substantially larger than in 1931.

□ □ □

Stanton Steel Co. has opened a warehouse at 5278 Tireman avenue, Detroit, for the sale of sheet and strip steel and terne plate. The company is composed of Herbert B. Trix, John D. Stanton and Laurence J. Carolin.

□ □ □

H. A. Brassert & Co., Chicago, engineers and constructors, have put into service an Askania draft control on No. 4 open-hearth furnace of the Worth Steel Co., Claymont, Del. A similar control has been installed on the billet heating furnace of the 10-inch merchant mill of the Youngstown Sheet & Tube Co., East Chicago, Ind.

□ □ □

Bullard Co., Bridgeport, Conn., has granted the General Motors Corp., Detroit, a license to use the Bullard-Dunn process for electrolytically descaling metal. The license covers use of the process in all General Motors plants. It was adopted after practical test in the Cadillac plant at Detroit and in the research division of General Motors Corp.

□ □ □

Thomas & Armstrong Mfg. Co., London, O., has been reorganized with the following for directors: R. W. Boyd, C. L. Thomas, M. H. Ellison, R. H. Robison, all of London, O., and J. F. Balo, Mt. Sterling, O. R. W. Boyd has been elected president, F. F. Balo vice president, C. L. Thomas secretary and treasurer, and M. H. Ellison general manager.

□ □ □

Babcock & Wilcox Tube Co., Beaver Falls, Pa., has opened a district sales office at 2002 Philtower building, Tulsa, Okla., in charge of Carl J. Hochenauer, formerly general manager for the Interstate Pipe Co., Pittsburgh, and manager of the steel coupling division of the A. O. Smith Corp., Milwaukee.

□ □ □

Intercontinental Pipe & Mining Co. Inc., New York, has changed its name to Ipamco Pipe Corp. and has moved its offices to the Lincoln building, 60 East Forty-second street. The San Francisco office is in the Kohl building, 406 Montgomery street. Contracts of agency with Herbert Kennedy and Carl G. Claussen have expired and have not been renewed.

□ □ □

Union Special Machine Co., Chicago, has leased space in the McCrary building, 160 Williams street, Atlanta, Ga., for southern headquarters, covering Georgia, the Carolinas, Florida, Alabama, Mississippi and part of Virginia. P. T. McLendon has been made branch manager and H. A. Sims assistant. Complete service and a supply of repair parts will be offered.

□ □ □

Patterson Foundry & Machine Co., East Liverpool, O., has entered the stoker field and will build units from domestic to largest industrial sizes. The stoker division has appointed the Homer-Read Co., 105 Vandergrift building, Pittsburgh, district representative for the Pittsburgh district; Horace S. Bracken, Johnstown, Pa., for that district; R. W. Matthews, 770 Girard street, Washington, for the District of Columbia.

□ □ □

Cleveland Hardware & Forging Co., Cleveland, forms a reorganization of the Cleveland Hardware Co. Stock has been reduced from $100 to $20 par value. T. P. Robins continues as president and Charles E. Adams as chairman of the board. A. J. Sanford has been elected vice president, secretary and general manager. He formerly was with Timken Roller Bearing Co. and sales manager of Timken Steel & Tube Co., Canton, O.

□ □ □

Consolidated Steel Corp. Ltd., Los Angeles, has opened an office in the Russ building, San Francisco, in charge of Robert D. Spear. The company has been made sales and manufacturing representative for the Foster Wheeler Co., New York, manufacturer of power plant, marine, oil refinery and gasoline plant equipment. The Consolidated company has been awarded 200 tons of plates for four 1000-horsepower boilers for the Mare Island navy yard.

□ □ □

A. G. J. Rapp and C. D. Hollins have opened an office at 7001 North Clark street, Chicago, to specialize in foundry equipment sales and engineering. They will represent Louden Machinery Co., Fairfield, Iowa; Royer Foundry & Machine Co., Wilkes-Barre, Pa.; Royersford Foundry & Machine Co., Royersford, Pa. They have exclusive representation to the foundry trade in Chicago and Milwaukee districts. They will also handle ladles, vibrators and other equipment and supply sand-handling and preparing and mold-handling equipment of their own design.

□ □ □

Thomson-Judd Wire Machinery Co. has been incorporated by the Thomson-Gibb Electric Welding Co., Lynn, Mass., and Bay City, Mich., taking over the wire machinery department organized last fall. The new company is a subsidiary of Thomson-Gibb and will be located at Lynn. It will manufacture a complete line of wire-drawing machinery for steel and copper; high-speed planetary and rigid-type stranders for wire rope and electric cables; high-speed textile and paper insulating machinery; armoring and saturating equipment; galvanizing, annealing and tinning equipment; wire welders and brazing machines. George A. Cutter is president of the new company, Josiah Judd vice president and general manager, Danial J. Lyne secretary, W. T. Ober assistant secretary and A. P. Reed treasurer. The officers with W. H. Gibb and A. R. Petterson form the board of directors.

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SPACING MACHINE COMPANY
PITTSBURGH
FABRICATING MACHINERY

Construction and Enterprise

New England

NEW BRITAIN, CONN.—Russell & Irwin division, American Hardware Corp., recently received a large order to supply hardware for the new Christian Science publishing house in Boston. The new building will cost about $3,000,000 and will contain about 58,000 square feet of floor space.

New York

HOOSICK FALLS, N. Y.—T. R. Brien Heater Co., recently incorporated with $100,000 capital, has bought the gray iron foundry building and a shop formerly occupied by the Walter A. Wood Co. and will remodel them for use in producing its line of heaters. W. T. Brien, Center street, Hoosick Falls, N. Y., is one of the stockholders.

New Jersey

NORTH BERGEN, N. J.—Willaber Mfg. Co. has been incorporated with $100,000 capital to manufacture machinery, by Eric H. Jentz, 586 Newark avenue, Jersey City, N. J.

Pennsylvania

EASTON, PA.—T. W. & C. B. Sheridan Co., 135 Lafayette street, New York, has bought the plant of the American Assembling Machine Co. at Easton, Pa., from the receiver, for $100,000.

Ohio

CINCINNATI—Fay & Egan Mfg. Co. has been formed as a subsidiary of the J. A. Fay & Egan Co. to manufacture metal airplane propellers. The parent company will retain ownership of 80 per cent of the common stock, of which there are 5000 shares at $10 par. There are also 250 shares of 8 per cent cumulative preferred stock at $100 par.

Michigan

CHESANING, MICH.—Big Rock Foundry Co. is considering remodeling and building an addition to its machine shop and tool room at estimated cost of $25,000, with equipment.

FLINT, MICH.—Department of public works is considering construction of an electric power generating plant.

Illinois

BELLEVILLE, ILL.—Specialty Tool Manufacturers Inc., S. M. Gundlach president, has been incorporated to promote and assemble a specially designed shingle cutter, which will be manufactured by an outside concern.

CHICAGO—National Metallic Mfg. Co., manufacturer of metallic caskets, 2004 West Lake street, has bought a three-story plant at Logan boulevard and Holly avenue, and will build an addition costing $75,000 and make extensive alterations. The new plant will be occupied about Feb. 1.

Southern States

NEW ORLEANS—Go-Ro Heaters Inc. has been incorporated to manufacture heaters, with $10,000 capital, by A. F. Goreaux, president.

NEW ORLEANS—Lake Superior Brass & Copper Foundry has been incorporated with $2000 capital to manufacture brass and copper castings, by John Ponzo, president.

SHREVEPORT, LA.—Cedar Grove Refining Co. will rebuild its plant, recently burned with loss of $50,000. New stills and boiler equipment will be required, R. F. Griswold, box 1081, is president and general manager.

Missouri

ST. LOUIS—Laclede-Christy Clay Products Co. has started production of a high-temperature paint in various colors for coating furnace equipment or materials in places where intense heat is encountered.

ST. LOUIS—Southern Equipment Co., manufacturer of kitchen equipment whose plant was destroyed by fire recently, has occupied the old Liberty Foundry Co. plant, using 18,000 square feet of floor space. Ten additional employes have been taken on to catch up with orders after interruption of a month.

Oklahoma

CLAREMORE, OKLA.—Verdigris River Hydro Electric Corp. has been formed by Carl R. Mathews and plans to build a power plant on Verdigris river near here.

HARTSHORNE, OKLA.—Cambria Coal Co. has been formed to carry on mining operations near here by G. A. Reidt, McAlester, Okla.

OKLAHOMA CITY, OKLA.—Oklahoma Boiler & Welding Works has been incorporated with $2000 capital to operate a welding shop, by C. H. Tredway, 2000 Northwest Twenty-third street.

TULSA, OKLA.—Automatic Controller Corp. has been incorporated with $10,000 capital, by C. L. Wait, South Cheyenne avenue.

Texas

GLADEWATER, TEX.—Gilliland Refining Co. has been organized by J. W. Gilliland, St. Clair hotel, to operate an oil refinery. An inactive plant probably will be leased rather than a new one built.

HOUSTON, TEX.—American Iron & Metal Co. has established a yard and plant for pipe and metals at 2009 Quitman street. W. W. Thorne is manager.

Wisconsin

MADISON, WIS.—Oscar Mayer & Co., meat packers, have awarded a general contract to Theo. Stark Construction Co., Box 187, Wauwatosa, Milwaukee, for a 6-story hog-killing plant here, 100 x 120 feet. H. P. Henschein, 59 East Van Buren street, Chicago, is consulting engineer.

MILWAUKEE — Pabst Corp. has started work reconditioning and enlarging its beer ageing and storage plant at a cost of $457,000. Contracts are about to be let for furnishing 200 new 1000-gallon tanks at an approximate cost of $200,000.

MILWAUKEE — Allis-Chalmers Mfg. Co. has booked an order for 45 large transformer units from the metropolitan water district of Southern California to be used in connection with construction of the Colorado river aqueduct to supply water from the Hoover dam project to Los Angeles and other cities in Southern California. This company has completed delivery of half an order for 25 transformers to the Pennsylvania railroad.

Pacific Coast

OAKLAND, CALIF.—Western Die Casting Co., 4065 Hollis street, Emeryville, a suburb, and Aerochrome Engine Valve Co., 4069 Hollis street, were damaged by fire recently with loss of $75,000 to $100,000.

PORTLAND, OREG.—Pacific Rail Joint Co. has started operations with a force of 40 men in part of the plant of Poole & McGonigle Inc., steel fabricators, the plant being enlarged and equipment added.

SEATTLE—Electro Chemical Corp., 200 McDowall building, has been formed with $50,000 capital to manufacture equipment for welding burned-out electric bulbs.

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Volume 92 Number 5

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

PETER WHITE on shipping the first barrel of iron ore from Marquette in 1857 and the Merritt brothers 33 years later on discovering the great deposits of the Mesabi would have scorned the prophecy that inglorious scrap and flue dust some day would become hurtful competitors of their red gold. Yet, in 1932, owing to these by-products, the consumption of ore per ton of pig iron produced declined to 1.4 tons, compared with a 10-year average of 1.7 tons and a theoretical ratio of 1.8 to 1. Ore shippers, reviewing last year (p. 11), find comfort in the coincidence of the falling curves of ore consumption and general business, maintaining that scrap has been favored because unduly depressed in price while ore has been reserved as an asset for bank credit.

Upward Sweep of Losses Is Checked

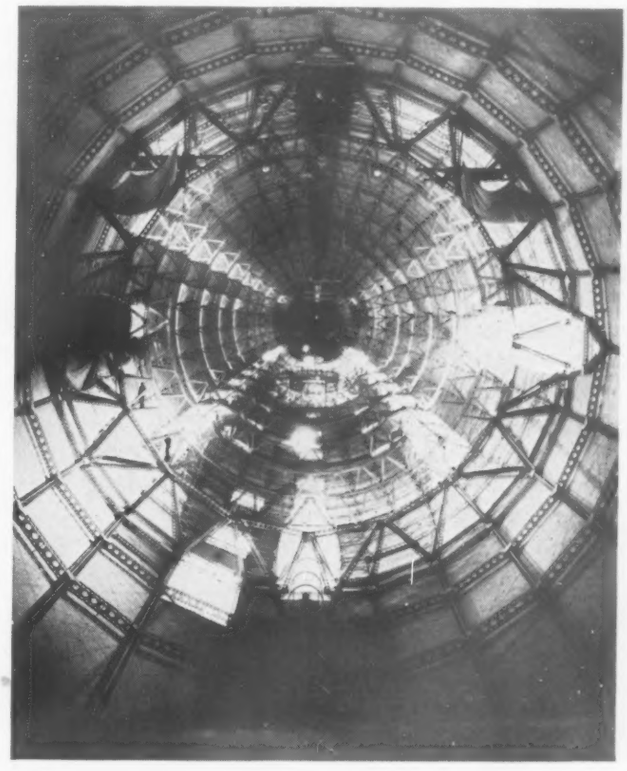
Deflation, however, has laid no more heavy hand upon the raw material phase of the great iron and steel industry than upon the finishing end. As financial reports are issued, it is apparent (p. 9) that the upward tendency of deficits was checked in the fourth quarter, but the vista for the year discloses a situation which only prudently-conceived surpluses could cushion. Only one integrated producer will show a profit for 1932. . . . Such a showing externalizes a competitive condition, which in the structural fabricating industry compels a reduction of 25 per cent in wages (p. 10). Blast furnace and steel mill labor, it is stated, is not affected.

Markets Struggle To Do Penance for 1932

Displaying unexpected virility derived from miscellaneous sources, the iron and steel markets continue to move to higher ground (p. 33). Another point has been acquired by the steel production rate, now at 19 per cent. . . . Not in months has the 14,000-ton pipe order booked (p. 41) by a Valley mill been equalled. . . . The automotive industry continues to shore up demand, but a new element arises (p. 13) in the way of strikes in Detroit plants. With its two sources of body supplies down, Ford has closed, but this delay may be to Ford's liking and bring volume production closer to the expected spring bulge in retail selling.

Tariff Bars Do Not a Prison Make

When imports of iron and steel fell off faster in December than did the outward movement, the foreign trade balance broadened, but the showing for the year is disquieting (p. 12). Exports declined from 968,996 tons in 1931



Wide World Photo

Find two men in the left foreground as a key to the size of the interior of the dirigible MACON *being built at the Goodyear plant in Akron, O. This view is from the tail of the ship*

Construction and Enterprise

New England

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HOOSICK FALLS, N. Y.—T. R. Brien Heater Co., recently incorporated with $100,000 capital, has bought the gray iron foundry building and a shop formerly occupied by the Walter A. Wood Co. and will remodel them for use in producing its line of heaters. W. T. Brien, Center street, Hoosick Falls, N. Y., is one of the stockholders.

New Jersey

NORTH BERGEN, N. J.—Willaber Mfg. Co. has been incorporated with $100,000 capital to manufacture machinery, by Eric H. Jentz, 586 Newark avenue, Jersey City, N. J.

Pennsylvania

EASTON, PA.—T. W. & C. B. Sheridan Co., 135 Lafayette street, New York, has bought the plant of the American Assembling Machine Co. at Easton, Pa., from the receiver, for $100,000.

Ohio

CINCINNATI—Fay & Egan Mfg. Co. has been formed as a subsidiary of the J. A. Fay & Egan Co. to manufacture metal airplane propellers. The parent company will retain ownership of 80 per cent of the common stock, of which there are 5000 shares at $10 par. There are also 250 shares of 8 per cent cumulative preferred stock at $100 par.

Michigan

CHESANING, MICH.—Big Rock Foundry Co. is considering remodeling and building an addition to its machine shop and tool room at estimated cost of $25,000, with equipment.

FLINT, MICH.—Department of public works is considering construction of an electric power generating plant.

Illinois

BELLEVILLE, ILL.—Specialty Tool Manufacturers Inc., S. M. Gundlach president, has been incorporated to promote and assemble a specially designed shingle cutter, which will be manufactured by an outside concern.

CHICAGO—National Metallic Mfg. Co., manufacturer of metallic caskets, 2004 West Lake street, has bought a three-story plant at Logan boulevard and Holly avenue, and will build an addition costing $75,000 and make extensive alterations. The new plant will be occupied about Feb. 1.

Southern States

NEW ORLEANS—Go-Ro Heaters Inc. has been incorporated to manufacture heaters, with $10,000 capital, by A. F. Goreaux, president.

NEW ORLEANS—Lake Superior Brass & Copper Foundry has been incorporated with $2000 capital to manufacture brass and copper castings, by John Ponzo, president.

SHREVEPORT, LA.—Cedar Grove Refining Co. will rebuild its plant, recently burned with loss of $50,000. New stills and boiler equipment will be required, R. F. Griswold, box 1081, is president and general manager.

Missouri

ST. LOUIS—Laclede-Christy Clay Products Co. has started production of a high-temperature paint in various colors for coating furnace equipment or materials in places where intense heat is encountered.

ST. LOUIS—Southern Equipment Co., manufacturer of kitchen equipment whose plant was destroyed by fire recently, has occupied the old Liberty Foundry Co. plant, using 18,000 square feet of floor space. Ten additional employes have been taken on to catch up with orders after interruption of a month.

Oklahoma

CLAREMORE, OKLA.—Verdigris River Hydro Electric Corp. has been formed by Carl R. Mathews and plans to build a power plant on Verdigris river near here.

HARTSHORNE, OKLA.—Cambria Coal Co. has been formed to carry on mining operations near here by G. A. Reidt, McAlester, Okla.

OKLAHOMA CITY, OKLA.—Oklahoma Boiler & Welding Works has been incorporated with $2000 capital to operate a welding shop, by C. H. Tredway, 2000 Northwest Twenty-third street.

TULSA, OKLA.—Automatic Controller Corp. has been incorporated with $10,000 capital, by C. L. Wait, South Cheyenne avenue.

Texas

GLADEWATER, TEX.—Gilliland Refining Co. has been organized by J. W. Gilliland, St. Clair hotel, to operate an oil refinery. An inactive plant probably will be leased rather than a new one built.

HOUSTON, TEX.—American Iron & Metal Co. has established a yard and plant for pipe and metals at 2009 Quitman street. W. W. Thorne is manager.

Wisconsin

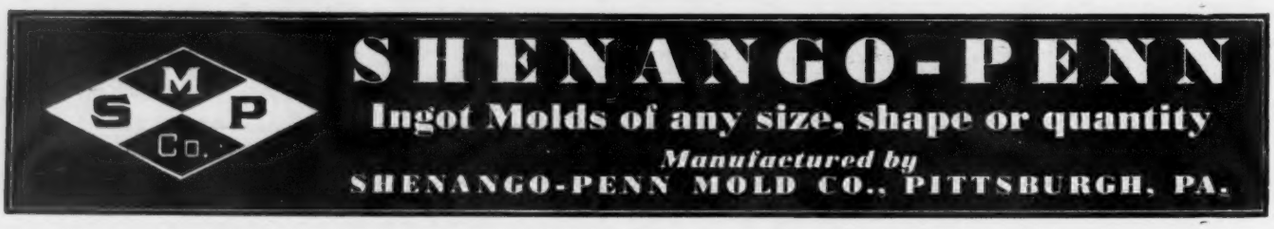
MADISON, WIS.—Oscar Mayer & Co., meat packers, have awarded a general contract to Theo. Stark Construction Co., Box 187, Wauwatosa, Milwaukee, for a 6-story hog-killing plant here, 100 x 120 feet. H. P. Henschein, 59 East Van Buren street, Chicago, is consulting engineer.

MILWAUKEE — Pabst Corp. has started work reconditioning and enlarging its beer ageing and storage plant at a cost of $457,000. Contracts are about to be let for furnishing 200 new 1000-gallon tanks at an approximate cost of $200,000.

MILWAUKEE — Allis-Chalmers Mfg. Co. has booked an order for 45 large transformer units from the metropolitan water district of Southern California to be used in connection with construction of the Colorado river aqueduct to supply water from the Hoover dam project to Los Angeles and other cities in Southern California. This company has completed delivery of half an order for 25 transformers to the Pennsylvania railroad.

Pacific Coast

OAKLAND, CALIF.—Western Die Casting Co., 4065 Hollis street, Emeryville, a suburb, and Aerochrome Engine Valve Co., 4069 Hollis street, were damaged by fire recently with loss of $75,000 to $100,000.

PORTLAND, OREG.—Pacific Rail Joint Co. has started operations with a force of 40 men in part of the plant of Poole & McGonigle Inc., steel fabricators, the plant being enlarged and equipment added.

SEATTLE—Electro Chemical Corp., 200 McDowall building, has been formed with $50,000 capital to manufacture equipment for welding burned-out electric bulbs.